An Address
ON
CHRONIC INTESTINAL STASIS.

DELIVERED AT THE NORTH-EAST LONDON POST-GRADUATE COLLEGE.

BY SIR W. ARBUTHNOT LANE, BART., M.S., F.R.C.S.,
SENIOR SURGEON, GUY'S HOSPITAL, LONDON.

You have done me the honour to ask me to speak about chronic intestinal stasis. In the time at my disposal it is obviously impossible to deal with this vast subject in all its aspects, and I will confine myself to stating as briefly as possible the conditions which result, both directly and indirectly, from it.

By chronic intestinal stasis I mean that the passage of the contents of the intestinal canal is delayed sufficiently long to result in the production, in the small intestine especially, of an excess of toxic material, and in the absorption into the circulation of a greater quantity of poisonous products than the organs which convert and excrete them are able to deal with.

In consequence there exist in the circulation materials which produce degenerative changes in every single tissue of the body and lower its resisting power to invasion by deleterious organisms.

Perhaps the best scientific confirmatory evidence I can put forward of the harmful effect of defective drainage, both of the body as a whole and of the several tissues which constitute it, has been afforded recently by the remarkable experiments of Carrel in the growth of living tissue, in which he has shown that tissues are immortal, and grow to the greatest advantage if the drainage of their toxic products is carried out effectually.

I have so frequently described the mechanical factors that bring about the intestinal stasis that I will refer but very briefly to them in this communication.

Owing to unsuitable diet in infancy and to the habitual assumption of the erect position, delay of faecal material takes place in the large bowel, or cesspool, of the gastro-intestinal tract, or, as it can be best described, the "general drainage system of the body." In consequence of this, new membranes or resistances to downward displacement are formed by the crystallization of lines of force upon the surface of the peritoneum along which strain is specially exerted.

The first membrane which usually forms is that fixing the large bowel on the left side to the pelvic brim. This tends to reduce the freedom of the passage of material through this section, and is a frequent seat of cancer later in life. I applied the term "the first and last kink" to the locality of this obstruction in the intestine, since it is usually the first to form, and it is the lowest obstruction that develops in the intestinal canal. This membrane frequently attaches the left ovary, and later may enclose it, rendering it cystic and producing an ovarian tumour.

Similar evolutionary membranes are developed on the surface of the peritoneum, which is reflected outwards from the caecum, ascending and descending colon. These are much exaggerated at the splenic and hepatic flexures. Membranes develop also between the transverse colon when prolapsed, the adjacent ascending and descending portions of the large bowel transmitting through them much of its weight. The acquired membrane which runs outwards and upwards from the caecum may anchor the appendix at some point in its length, frequently producing a kink or obstruction of its lumen. In such circumstances inflammatory changes ensue, which are comprised under the term "appendicitis." Obstruction at any part of the large intestine may result in inflammatory or cancerous conditions.

The accumulation of material in a large prolapsed caecum may result in great delay in the evacuation of the contents of the ileum, and considerable accumulation of material in the small bowel.

Or the obstruction of the ileum may be still further exaggerated in a more definite manner in two distinct ways, which may act separately or in association. If either affords a secure grip on the bowel the other is absent; but if one is only partially efficient both may be present, dividing between them the function of supporting the caecum directly and indirectly. I refer to the development of a membrane in the under surface of the mesentery attaching the small intestine at varying points on its surface and obstructing its lumen, producing what I called the "ileal kink." Or the end of the ileum may be controlled by a fixation of the appendix to the under surface of the mesentery of the ileum by acquired adhesions.

Both these developments are evolutionary, and are not inflammatory.

The accumulation of material in the small intestine drags upon and obstructs the duodeno-jejunal junction. In consequence, the duodenum is elongated and dilated, and especially in its first portion, where it is free and surrounded by peritoneum. Later the pylorus becomes spasmodically contracted because of the constant necessity of preventing regurgitation of the duodenal contents into the stomach. As a result the stomach becomes dilated by the accumulation of its contents.

The delay of the contents of the small intestine, and also of the duodenum and stomach, results in their infection by organisms and in the development of chemical changes in the stagnating material.

These changes, in addition to the mechanical effects already described, bring about an engorgement of the mucous membrane of the first part of the duodenum, which may end in ulceration and perforation; or a similar change in the mucous membrane about the pylorus and along the lesser curvature of the stomach, which may terminate in ulceration, perforation, and later in cancer; or an infection of the ducts of the pancreas, which may produce degenerative inflammatory changes and their consequences. Later, cancerous changes may result in the damaged organ, or it may produce infection of the ducts of the liver and of the gall bladder, which may determine the development of gall stones, cholecystitis, and later cancer; or it may be the source of acute or chronic diseases of the liver.

Associated with this condition of the gastro-intestinal tract there is occasionally a spasm of the orifice of the oesophagus which causes the accumulation of the contents of this tube. This has been described as cardio-spasm by Dr. Plummer, the distinguished physician of Rochester. The symptoms that result directly from the autointoxication of chronic intestinal stasis are:

1. Loss of fat.
2. Wasting of the voluntary and involuntary muscles.
3. Degenerative changes in the skin associated with alteration in its texture and colour, the development of pigmentation, especially in certain localities, and a more or less offensive character of the perspiration. The pigmentation is so marked in some cases as to leave little doubt that the patient is suffering from Addison's disease.
4. The temperature of the body in cases of uncomplicated stasis is subnormal, and that of the extremities is particularly so. In some cases the condition of the extremities is such that they become bloodless, so that no blood can be obtained by pricking the hand or foot. In such circumstances the patient seems to lose common sensation in the part more or less completely. There is no abrupt line of separation between this condition and so-called Raynaud's disease, of which it would appear to be a stage. Stasis always exists in Raynaud's disease. Occasionally the hands may be quite bluish in colour. Sometimes this blueness of the skin is more widespread, when the term "microbic cyanosis" is applied to it.
5. The mental condition is one of apathy, stupidity, or misery. This may become exaggerated into a state of melancholia, or even apparent imbecility. These patients are very liable to commit suicide. They sleep very badly, and awake feeling they have derived no benefit from their night's rest. Neuralgic symptoms and so-called neuritis are frequently present in varying degrees of severity. Epileptiform tic is not infrequently the result of intestinal stasis, as evidenced by its disappearance after colectomy. Headache is a very frequent feature, and may render the patient's life unendurable. One of the most serious symptoms which results from the damage to the nervous tissues by toxins is the want of control over the temper, which makes the sufferer very difficult to live with, and

leads to much misery and crime. It is a much more frequent cause of serious crime than is generally imagined.

6. The patient complains of so-called rheumatic aches and pains in the muscles and joints, and often in the skin.

7. The thyroid gland wastes, so much so that in marked cases no evidence of its presence can be detected by the finger.

8. The blood pressure may be raised or depressed.

9. The breasts show very definite degenerative changes. These are most marked in the upper and outer zone, and especially in the left breast. Cancer readily develops in this condition of the breast.

10. The several organs prolapse and alter in shape, partly because of the loss of fat, partly because of the wasting of muscle fibre. These changes are illustrated very well by the acquired mobility of the kidneys and the prolapses and bends of the uterus.

11. The patient becomes breathless on exertion. This may be so marked as to be regarded as asthma, while it may also be produced by the distension of the stomach or intestines interfering with the action of the heart.

12. Most of the degenerative changes that affect the muscle of the heart appear to be due to autointoxication. An examination by the *x* rays shows frequently a dilatation of the left heart and of the aorta with degenerative changes in its coats. Dr. Jordan has demonstrated this condition very clearly, while Dr. James Mackenzie has elaborated the clinical aspects in his remarkable work on the heart which has revolutionized our knowledge of cardiac conditions. Associated with the atheromatous degeneration of the large vessels there are similar changes in all the smaller vessels.

13. The kidneys are liable to become affected by the abnormal strain thrown on them, and degenerative and inflammatory changes result which are roughly grouped under the term "Bright's disease."

14. The hair of the head loses its colour early in life and tends to fall out. A strange fact is the influence which the colour of the hair has upon most of the changes just described. The darker the hair, the more marked is the tendency to degeneration under the influence of autointoxication. In the case of red hair the objective symptoms are but slightly marked. It would seem to be a great advantage to have red hair, and this varies with the brightness of the colour and with the extent of its distribution. While the hair of the head tends to degenerate, hair grows excessively on places in which it is usually absent or inconspicuous, as on the cheeks, chin, upper lip, forearms, about the nipple and along the middle of the back. It becomes occasionally a source of much annoyance and distress to the patient.

15. The pancreas becomes infected directly by extension from the stagnating contents of the duodenum. This results in chronic induration, inflammation, and, finally, cancer of this organ. Pancreatic diabetes may also ensue.

16. In a similar manner the ducts of the liver and gall bladder are infected, and gall stones, cholecystitis, and cancer may be produced, besides many acute or chronic diseases of the liver.

17. Those diseases of the eye which are degenerative in origin are produced by and vary with the degree of autointoxication.

The indirect changes, or those that result from the lowered resisting power of the tissues to the invasion of organisms produced by autointoxication, can hardly be separated abruptly from all those conditions described as being caused directly by it.

The most obvious are:

(*a*) Infection of the gums causing the condition commonly described as pyorrhoea alveolaris.

(*b*) Tuberculous infection, when not produced by direct inoculation.

(*c*) Rheumatoid arthritis. This, like tubercle, cannot develop except in the presence of defective drainage of the gastro-intestinal tract.

(*d*) Infection of the genito-urinary tract, either directly or indirectly, through the blood stream, by organisms other than tubercle, producing nephritis, cystitis, pyelitis, endometritis, salpingitis, etc.

(*e*) Development of changes in the thyroid gland, whether as adenomatous tumours, general enlargement of the thyroid, or exophthalmic goitre.

(*f*) Still's disease.

(*g*) Infections of the skin of a pustular nature.

(*h*) Infection of the large intestine by organisms which produce the several varieties of mucous and ulcerative colitis.

(*i*) Ulcerative endocarditis.

I have chosen, then, merely a few obvious, typical, indirect results of the autointoxication of chronic intestinal stasis. The point of practical interest in connexion with these indirect results of stasis is that if the drainage scheme be made to work efficiently, or if, in other words, the delay of material in the small bowel be met effectually by mechanical means or by operative interference, the resisting power of the tissues of the body is such that they can destroy the organisms or the poison which produces these conditions if not too advanced or if cancer has not developed. For instance, nothing is more remarkable in the whole range of surgery than the result of removal of the large bowel in a case of rheumatoid arthritis. The transition is so abrupt as to be startling. The rejuvenation of the body and of all its constituent parts after such operative measures as render the drainage scheme efficient is the most satisfactory result of surgery known to us at the present time.

The treatment of chronic intestinal stasis and its results must vary somewhat with the stage which the condition has reached, and also with the nature and degree of the superadded indirect result should such be present also.

The treatment, other than operative, of the defective drainage scheme consists in the use of paraffin before each meal. This precedes the food in its passage along the canal, and facilitates the effluent. As it cannot be absorbed it renders the motions fluid, and ensures one or more evacuations daily. Its action as a lubricant is so remarkably efficient that it can meet many of the troubles that arise directly or indirectly from chronic intestinal stasis. Associated with the use of paraffin a spring support which presses on the abdomen below the umbilicus acts very effectually in stimulating the intestines to pass on their contents, in preventing the puddling in the ileum which produces distension of the duodenum and stomach, in keeping up the transverse colon, caecum, and other viscera which prolapse, and in exerting a constant pressure upon the veins in the splanchnic area, so preventing the accumulation of blood in this situation and keeping the brain well supplied with blood.

It is also advisable to put into the stomach as little food as is likely to decompose and become poisonous if it is delayed in its passage through the intestines, such as butcher's meat, etc.

Should these measures fail to afford relief of the objective and subjective symptoms, recourse must be had to operative measures. In those cases in which the delay in the ileum is due to an interference with its lumen by the pressure exerted by an appendix which, passing up behind it, is anchored to the mesentery of the ileum, the removal of the appendix at once restores complete freedom of passage to the contents of the ileum into the caecum.

It is because of the subsequent cure of the symptoms of duodenal ulcer from the relief of the effluent by the removal of a controlling appendix that it has been supposed that duodenal ulcer was produced by an infection of organisms from the appendix, as it is erroneously supposed to result from infection from the gums, etc. If the end of the ileum is controlled by the membrane which develops on the under surface of its mesentery in some cases, the freedom of passage of the ileal contents may be obtained by dividing this band.

It is in just such cases that much experience is required. When the controlling band is very narrow and very tense its division allows of the complete restoration of the mesentery to its original length. If after this operation the patient takes paraffin habitually and wears a spring support no recurrence of the band may take place—one must remember that the mere division of the band is of little service if the mechanical conditions which were originally responsible for its existence are allowed to persist.

My experience of this condition is that if the band is not very limited in its breadth and not very tense it is much wiser to short-circuit the patient by dividing the ileum and by putting it into the pelvic colon. This is particularly true of women. If the colon is loose and pendulous I always remove it down to the junction. I know that

regurgitation upwards from the ileo-colic junction is very likely to take place when the large bowel is loose and pendulous and easy of removal, while it very rarely does so if the large intestine is fixed fairly high in the abdomen, in which case its removal would naturally be more difficult. My rule is, therefore, to be satisfied with ileo-colostomy if it is difficult to remove the large bowel, and to remove it if it can be effected easily. This is a very practical and convenient rule.

I never perform gastro-enterostomy for duodenal distension even if there be ulceration, as it is both unnecessary and harmful. If, however, the ulceration has resulted in a considerable reduction of the lumen of the bowel, either by the great extent of the ulceration or because of its cicatrization, I employ a gastro-enterostomy, having first freed the ileal effluent by an ileo-colostomy, or by the other means already referred to. If the stomach be much dilated, because of chronic spasm of the pylorus, to such an extent that, after short-circuiting, the spasm cannot be met by washing out the stomach for several days, I perform gastro-enterostomy.

If the stomach be ulcerated and there be no suspicion of cancerous infection, in addition to a short-circuit, with or without colectomy, I do a gastro-enterostomy, in order to take the strain off the lesser curve by draining the stomach very effectually.

The only risk presented by the operations of short-circuiting and colectomy is that of adhesion of the intestines to one another, or to the abdominal wall, in such a manner as to produce a varying degree of obstruction. This is a risk common to all abdominal operations, and can only be reduced to a minimum by avoiding any unnecessary exposure or damage of the intestine, and by suturing the cut surfaces of peritoneum accurately together.

CASES.

The following cases were shown:

Case I.

O. M. B., spinster, aged 40, came under Dr. Murray Leslie's care suffering from general debility of four years' standing, accompanied by symptoms of mucous colitis with alternating constipation and diarrhoea. She had been treated with Plombières douches at Harrogate and elsewhere, but with no permanent benefit. There was marked yellowish-brown staining of the skin, which in association with the asthenia suggested the possibility of Addison's disease. There was definite pain and tenderness in the left iliac fossa over the sigmoid colon. Menstruation was irregular, and the patient complained of coldness of the extremities. She had suffered from indigestion since the age of 25. An *x*-ray examination was made by Dr. Jordan on March 29th, 1912. There was marked dropping of the stomach and transverse colon. The duodenum was elongated; there was considerable stasis in the colon, while the caecum appeared to be impacted in the pelvis. Cultures of *Streptococcus faecalis* and of *Bacillus coli* were made, and a course of vaccine treatment was given, with slight general benefit, but no permanent improvement. On June 12th, 1912, the ileum was short-circuited into the pelvic colon.

The patient had a somewhat tedious convalescence, but is now perfectly well. There is no pain, no constipation, and the patient is able to walk many miles without fatigue.

Case II.

R. B., spinster, aged 38, had for some months been under Dr. R. Murray Leslie's care for chronic constipation and extreme asthenia of eight years' duration, which had gradually increased in severity; seven years before coming under observation an appendicostomy was performed, but without permanent benefit. Her physician felt that, unless her condition was improved in some way, her unhappy life could not be prolonged materially by further medical treatment. In September, 1905, the large bowel was removed to the splenic flexure. She gained in weight, being 8 st. before the operation and 9 st. 4 lb. some months later. After a time the dilatation of the stomach, which had not previously been apparent, gave trouble, and in December, 1906, the pylorus was freed from the under surface of the liver. She improved for a time, but the dilatation of the stomach was soon as bad as ever. In March, 1907, gastro-enterostomy was performed, with complete relief of the stomach symptoms. After a time the descending colon and sigmoid gave trouble and were removed in October, 1907.

The patient is now (eight years after the first operation) perfectly well. There is no constipation or abdominal discomfort, she is able to walk long distances, and can play as many as five sets of tennis without undue fatigue. She has required no medical attendance for the last two years.

Case III.

G. H., aged 11 (male), had had tuberculous disease of the hip since the age of 3. Two operations had been performed; he had had a discharging sinus for over a year. Six months before admission a large abscess was opened, swabbed out, and packed with gauze. There was on admission three inches shortening and marked flexion, adduction and internal rotation. He had much constipation and well-marked toxic signs. Ileo-colostomy was performed on April 28th, 1911, and marked evidences of stasis were found in the abdomen.

Improvement after the operation was rapid and continuous. His hip is now well and he has no pain or other disability. He is rapidly putting on weight and can walk long distances without discomfort.

Case IV.

K. H., spinster, aged 37, had been constipated since birth. She had attended several different hospitals during the last eight years. She was said to have mucous colitis, and appendicostomy was done. She had been in the habit of taking 6 minims of croton oil twice a week, and said that this usually opened her bowels once. She had well-marked toxic symptoms, and was very pigmented. *X* rays showed a five days' delay in the colon. She had been bedridden for some time. The operation of ileo-colostomy was performed in 1910. (No note of what was found.)

Now she looks and feels very well, and has worked as a general servant ever since her operation, by which she says she has been greatly benefited. Her bowels are open every day without an aperient. She is rapidly putting on weight.

Case V.

F. M., spinster, aged 34, underwent laparotomy in 1904. She had been constipated since 1903. Every sort of medical treatment had been tried, and she had been in the medical wards at Guy's Hospital twice. There was swelling of the ankles and feet. The bowels were open six times in five weeks while in the medical wards. She complained of abdominal pain, but toxic symptoms were not very well marked. *X* rays showed a delay of eleven days in the transverse colon.

The operation of ileo-colostomy and colectomy was performed in 1909. Very dense bands were present, and the right ovary was cystic.

Within three months of this operation she had two further operations to free adhesions. She had severe whooping-cough, and in February, 1910, developed a faecal fistula. An operation to close the fistula was performed in 1912. She is now doing her work as a hospital nurse; she has no discomfort of any sort, and says that in the opinion of her friends she looks ten years younger.

Case VI.

A. E., a married woman, aged 30, had been constipated ever since she could remember. She had been treated at five different hospitals. She had suffered severe abdominal pain for the last eighteen months. Toxic signs and pigmentation were well marked. The operation of ileo-colostomy was performed in May, 1911. She had abdominal pain at the beginning of 1912, and was then found to have a tender and full caecum. Colectomy was performed in March, 1912. The colon was found full of hard masses. She made a good recovery.

She feels and looks very well; the bowels are quite regular every day; she eats well, and has no sickness. She feels much more cheerful than for years. She has gained 16 lb. in weight. She is very impressed with the difference in her hands and feet, which are now always comfortable and warm.

Case VII.

W. C., spinster, aged 24, had been constipated for many years. She had severe abdominal pain, and rheumatoid arthritis of both knees which was getting worse, and there was wasting of the right thigh. *X* rays showed extreme stasis in the large bowel. There was much tenderness over the right rectus and slight toxic symptoms. Ileo-colostomy was performed in December, 1911. There was a well-marked kink of the ileum and appendix.

Her general health is much better. She still has some pain in the knees, but the condition, according to her, has definitely ceased to progress. The bowels are open daily with paraffin.

CASE VIII.

A. F., spinster, aged 34, had suffered from slight constipation for ten years, and from severe abdominal pain for the last year. Toxic signs were not very well marked, but the patient had noticed the various symptoms getting worse for the last few weeks. Ileo-colostomy was performed in March, 1911. (No note of what was found.)

She was very well after the operation until about August, when she began to have some pain. A further operation was performed, and an adherent coil of small intestine freed. The patient was relieved. She now looks and feels perfectly well, and says she has no discomfort of any kind.

CASE IX.

H. C., male, aged 15, had had severe constipation needing enemata since he can remember. His general health was fairly good, but he had mild toxic symptoms. The tongue was very foul. *X*-ray examination showed a delay of forty-eight hours in the ileum. Large masses of faeces were felt in the caecum and ascending colon, which were only removed after five enemata. A diagnosis of ideopathic dilatation of the colon was made. At the operation, on June 9th, 1911, an enormously distended colon was found, together with a marked ileal kink, and masses of evolutionary adhesions. Ileo-colostomy was performed, and the patient made a rapid recovery.

He has enjoyed excellent health ever since, and has played football continuously during the last two winters.

CASE X.

T. I., male, aged 22, had had constipation, flatulence, and heartburn for seven years, and much mental depression. For the last six months he had experienced attacks of severe epigastric pain and distension. A swelling under the left costal margin appeared five months before admission, and had increased in size. Toxic signs were marked. *X*-ray examination showed some delay in emptying the stomach and a stasis of eighty-one hours in the colon. At the operation, on August 8th, 1912, a large tuberculous mass was found in the omentum, to which coils of intestine were adherent. The duodenum was dilated, and there was an ileal and duodenal kink. Ileo-colostomy was performed, and within two weeks of the operation the mass in the abdomen was no longer palpable. The patient has been following his employment since discharge, and is now in perfect health.

CASE XI.

C. F. J., male, aged 56, had begun two years earlier to have epigastric pain after food, accompanied by vomiting. These attacks occurred about twice a month. Dieting proved of no avail, and the attacks became more severe. For the last six months before admission he had been losing a good deal of flesh, and the total loss in two years had been 28 lb. Examination showed a dilated stomach and tender ileum. *X*-ray examination showed pyloric stenosis, ileal obstruction with a delay of thirty-six hours, and a stasis of ninety-six hours in the colon. At the operation, on March 18th, 1912, an old duodenal ulcer causing obstruction was found, and gastro-enterostomy was performed; at the same time, as there was an extremely well-marked ileal kink, ileo-sigmoidostomy was done.

The patient made an uninterrupted convalescence. He has been carrying out his work as a commercial traveller without a day's intermission since leaving the hospital.

CASE XII.

A. P., a married woman, aged 54, had been constipated for six years, and always had indigestion. She also had attacks of vomiting, and for the last few weeks severe pain in the abdomen. The skin was very pigmented, and toxic symptoms were well marked; *x*-ray examination showed duodenal distension and ileal stasis. After eighty hours bismuth had only reached the splenic flexure. At the operation, in August, 1912, the duodenum was found distended, and there was a marked ileal kink. Ileo-colostomy was performed. She now looks twenty years younger, feels very well, eats well, has no pain or vomiting, and is doing her ordinary work.

CASE XIII.

K. C., spinster, aged 44, when 7 years old had a tuberculous knee which discharged for eleven years. From 15 to 25 years of age she was able to do a little work, but was never strong. At 25 she went abroad owing to a breakdown in health, and she had phthisis, for which she was sent to Ventnor. She had very severe diarrhoea, and when 26 had to have an eye removed on account of an old injury. She began to have severe abdominal pain, diagnosed as due to ulcerative colitis, for which she was in bed many weeks. When 29 she had a severe pain in the right loin, and was given a belt for movable kidney. All this time she was passing large casts of the colon. When 37 she developed a goitre with exophthalmos, tremor, and severe palpitation, which continued for four years. Two and a half years ago she had another attack of colitis and was in bed four months. Last June she had another attack necessitating a long stay in bed. On admission she weighed 7 st., had a very tender colon, and the toxic signs were well marked. *X* rays showed very little, owing to the diarrhoea. At the operation, on December 16th, 1912, a marked ileal kink was found and extensive adhesions of colon. Ileo-colostomy was performed.

She made a rapid and complete recovery, and has been quite well since her discharge from hospital.

CASE XIV.

K. M., spinster, aged 44, had had severe constipation since the age of 14. Six years ago she was said to have colitis. She has had recurrent eczema, some vomiting and nausea, and suffered much misery. There was old arthritis of the right knee, and toxic signs were well marked. Blood pressure, 143 mm. Hg. *X* rays showed marked colonic stasis and considerable delay in the ileum. Ileo-colostomy was performed on April 15th, 1913. Great distension of the duodenum and an ileal kink were present.

The blood pressure one month later was 90 mm. Hg. Taken at the meeting, when the patient was considerably excited, it was 110 mm. Hg. Her general health is excellent and she has no discomfort.

CASE XV.

R. W., married woman, aged 45, had had severe attacks of constipation, abdominal pain and vomiting for two years, and had been much worse for seven months, during which time she had taken no solid food. There was marked pigmentation and much complaint of coldness of hands and feet. *X* rays showed a very dilated stomach and much colonic stasis. At the operation, on June 6th, 1913, the stomach and duodenum were found extremely distended, and there was marked ileal kink. Gastro-enterostomy and ileo-colostomy were performed. Convalescence was uninterrupted, and she is now perfectly well, doing her work, eating well, and putting on weight.

CASE XVI.

E. A. F., spinster, aged 42, had always suffered from constipation, which had been more troublesome for the last three years. She had severe indigestion, flatulence, and epigastric pains, some vomiting and some melaena. She had lost 1 st. in weight during the last six months. *X* rays showed pylorospasm and marked colonic stasis (eighty hours). At the operation, on March 11th, 1913, a dilated duodenum and an appendix controlling the ileum were found. Ileo-colostomy was performed.

After the operation the patient had pleurisy, which somewhat delayed convalescence. She is now perfectly well and has no discomfort of any kind.

CASE XVII.

M. H., spinster, aged 28, began to suffer from pain and swelling in the joints when 12 years old. She had chorea when 6, and again when 17. The arthritis spread to the large joints. She went to Harrogate and had baths and massage, with no benefit. She had typhoid fever when 19. She received electrical treatment and a nine months' course of Balfour treatment, but experienced no relief. Ten months ago the uterus was curetted, and she was given a course of vaccine treatment with *Staphylococcus aureus* obtained from the urine. She had a course of thyroid treatment, but continued to get worse. She had had considerable abdominal pain and vomiting, and had marked toxic symptoms. The finger-joints were stiff and in marked ulnar adduction, and the knees, elbows, and shoulders also were affected. She had not been able to sew for eighteen months. Pain in the joints lessened if no protein food was taken. *X* rays showed a delay in the colon of over 104 hours. Ileo-colostomy was performed on January 3rd, 1913. There was a marked ileal kink. As some regurgitation into the ileum occurred, colectomy was performed on May 12th, 1913.

Marked improvement in the joints followed the operation, and the patient was able to sew within three weeks of the ileo-colostomy. She is now doing her work and earning her living. She is rapidly putting on weight, and has no pain in any of her joints.

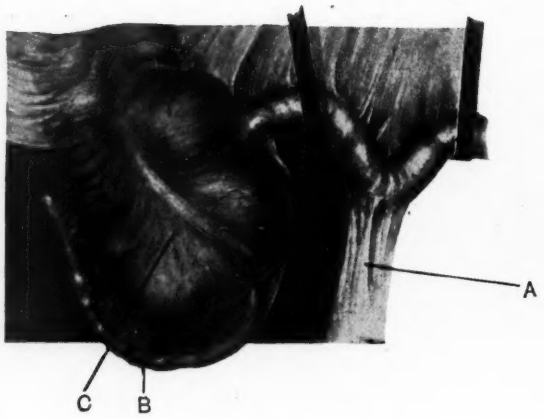


FIG. 1.

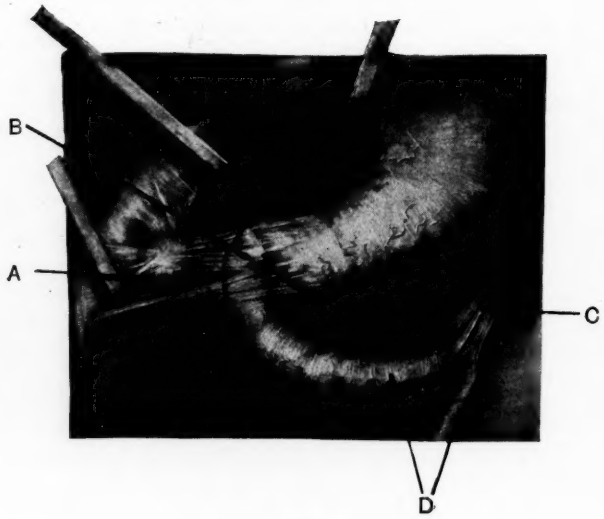


FIG. 2.

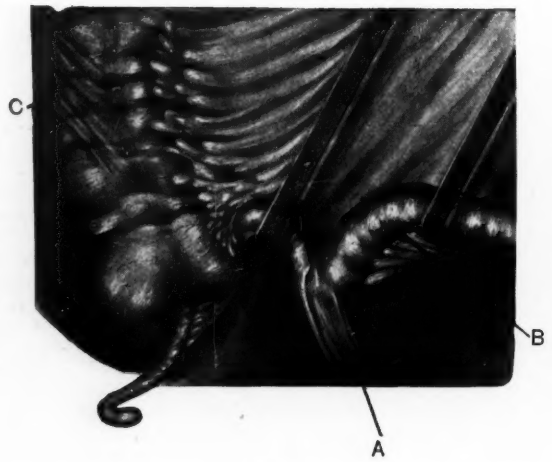


FIG. 3.

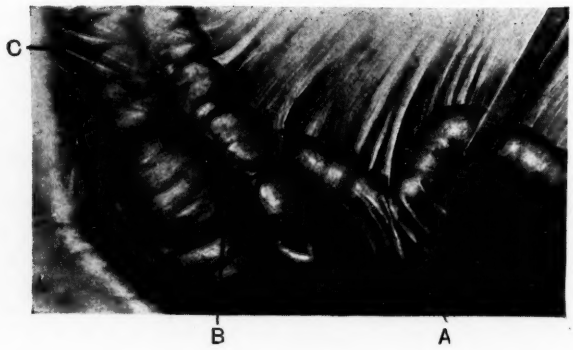


FIG. 4.

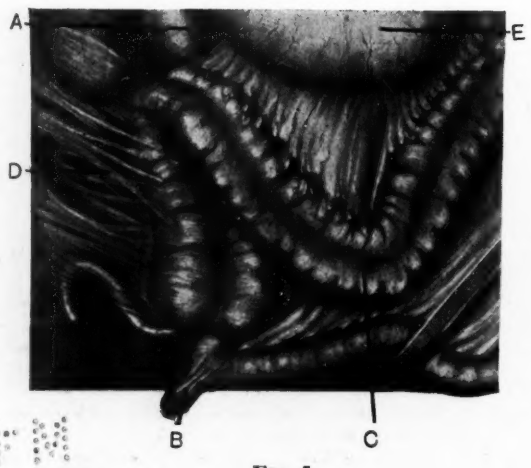


FIG. 5.

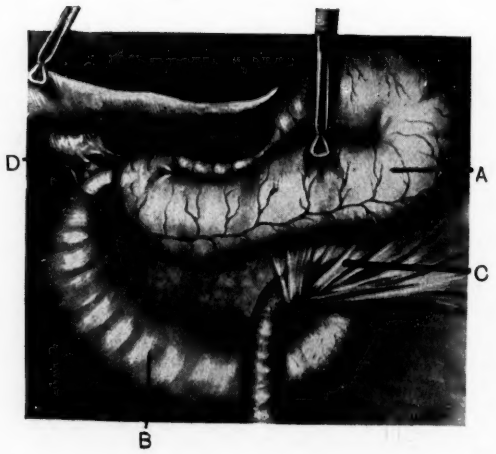


FIG. 6.

Remarks
ON
CHRONIC INTESTINAL STASIS

WITH REFERENCE TO CONDITIONS FOUND AT OPERATION AND THE MORTALITY.

MADE AFTER THE READING OF THE PREVIOUS PAPER.

(With Special Plate.)

BY

WM. SEAMAN BAINBRIDGE, A.M., SC.D., M.D.,

PROFESSOR OF SURGERY, NEW YORK POLYCLINIC MEDICAL SCHOOL AND HOSPITAL; SURGEON, NEW YORK SKIN AND CANCER HOSPITAL.

To Sir Arbuthnot Lane we are greatly indebted, for he has given to us a very clear view of the essential facts concerning stasis. He has evolved a most plausible theory as to its cause, and has pictured the far-reaching effects.

The cases he has presented are most convincing, especially so when we realize that they are not a small group of exceptions. We have seen seventeen patients to-day, many of them former human derelicts, now made over into useful and happy people.

During the past six years I have made five trips to England, and each time have studied the subject of chronic intestinal stasis. Every facility has been freely granted by Sir Arbuthnot for this work. Year after year I have seen his patients before operation, at the time of surgical treatment, witnessed his masterly technique, noted the history of the convalescent period, talked with staff and nurses and patients, and have seen a large number of the cases after an interval of many months.

Several times in the history of our profession Sir Arbuthnot Lane has blazed the trail into new fields, introducing radical methods of treatment, some of which have already become established as regular routine in surgical practice.

To aid this surgeon has come Dr. Jordan with his wonderful skill in *x*-ray diagnosis. Personally I have had many cases studied by very able men, but as yet we in America have not been able to equal his work. We are coming on, but Dr. Jordan is, I believe, to-day leading the way along this line.

With these two leaders here in London, with their work open to all, what can I add? However, a few facts from my personal experience may be of interest.

Intestinal stasis deserves our most serious consideration, and among the many questions which have naturally arisen in discussions of this subject, none is more important than the question of mortality.

STATISTICAL STUDY.

I determined to investigate the statistics for myself, and have carefully collected the following, taking all cases operated upon by Sir Arbuthnot Lane from Martha Ward at Guy's Hospital from May, 1909, to October, 1913.

OPERATIONS.

Short-circuits	54
Removal of colon	52

Out of these—

2 cases of short-circuit were done for rheumatoid arthritis.
1 for trigeminal neuralgia.
1 for tuberculous hip.
3 short-circuit cases returned with a diverticulum.
3 cases of removal of the colon were done on patients suffering from exophthalmic goitre.
4 from rheumatoid arthritis.

After operations for removal of colon 5 cases returned suffering from adhesions and had further operations.

After short-circuit operation 8 patients returned and had removal of the colon.

MORTALITY.

1909. (i) A patient, aged 48, died after removal of colon ten days after the operation, from sepsis.

1909. (ii) A patient, aged 68, died of shock after removal of large intestine for advanced carcinoma of the caecum.

1910. (iii) A patient, aged 24, died of sepsis after removal of colon, ten days after operation.

1910. (iv) A child, aged 7, with advanced hip-joint disease, died of peritonitis three days after a short-circuit operation had been performed. Condition very bad.

1910. (v) A patient, aged 36, died in the theatre while a short-circuit operation was being done.

1911. No death.

1912. (vi) A patient, aged 20, who had a colectomy done in 1909 and did splendidly until December, 1911. In January, 1912, she returned with pain and vomiting; she was operated upon and found to be pregnant. Persistent vomiting for six days after operation, accompanied by acute pain. She aborted eight days after the operation, and died of general peritonitis the next day.

1912. (vii) A patient, aged 40, had removal of colon for advanced malignant growth; was almost moribund on admission; died a week after the operation, of exhaustion.

1913. (viii) A woman, aged 43, had removal of colon for rheumatoid arthritis; did splendidly; joints and muscles improved, and pain very much less; died of a pulmonary embolism ten days after operation.

To make the investigation a very searching one all deaths, from whatever causes, occurring in this ward after short-circuiting or colectomy are included. This is obviously unfair when considering the mortality of stasis. We must exclude at least the two malignant cases—the moribund child and the case of abortion with sepsis. Further, it must be noted that successful partial excisions of the colon for growths are not included in our total list of cases. This leaves 54 cases of short-circuit, 52 of removal of the colon—106 in all. Four deaths—two from sepsis, one on the table, and one ten days after operation from pulmonary embolism. Thus the exaggerated statements of great mortality are not borne out.

DESCRIPTION OF SPECIAL PLATE.

Fig. 1.—No. 14. A, Lane's band. B, Four-inch appendix adherent for 3 in. from tip to outer side of caput coli. C, Caecum mobile.

Fig. 2.—No. 16. A, Adhesions around the pylorus to gall bladder and liver. B, Pylorus angulated and narrowed. C, Kinking at duodeno-jejunal junction. D, Duodenum dilated and jejunum collapsed.

Fig. 3.—No. 22. A, Lane's band. B, Dilatation of small intestine proximal to site of ileal kink. C, Jackson's membrane.

Fig. 4.—No. 26. A, Lane's band. B, Mobile caecum. C, Jackson's membrane.

Fig. 5.—No. 30, Ulcer of stomach. A, Dilated duodenum. Angulated duodeno-jejunal junction. B, Lane's kink. C, Prolapsed transverse colon. D, Jackson's membrane. E, Gastric dilatation.

Fig. 6.—No. 43. Ulcer of stomach. A, Dilated stomach extending below the umbilicus, due to cicatrized ulcer. B, Dilated duodenum. C, Duodeno-jejunal kink. D, Bands between gall bladder and pylorus.

[In the captions of the pictures the names in common use for various bands have been employed. It should be understood that these are not looked upon by the writer as constituting in any way separate entities.]

CONDITIONS FOUND AT OPERATING.

There are some who are very sceptical as to the conditions found at the time of operation. In order to meet this and establish the facts, it has been my custom in my own practice often to have an artist present as well as a stenographer at the time of operation to record exactly the conditions found.

In order to have such evidence of record as true as possible, I selected an artist who knew nothing but normal conditions. The artist was directed to picture what she saw that differed from normality, with enough of the normal in the neighbourhood to make it clear as to what part was being represented. The stenographer took down a description of the operation at the time. Later, the finished picture on the one hand and the stenographer's description of the operation on the other, form a very important part of the records of the individual case.

In some of the pictures, a selection from which is published to illustrate this paper, clear evidence will be seen that the picture portrays the exact condition of the patient lying on the table, and not the condition which would be present when the patient is occupying a perpendicular position. This goes a long way to prove the honesty of the drawings.

To sum up, judging from the experience in Martha Ward at Guy's Hospital and in my own cases in New York, the mortality in operations for cases of intestinal

stasis is astonishingly low. There is very little, if any, shock with the present technique; the much feared excessive thirst and persistent diarrhoea have not been borne out in our experience.

THE VISCERAL COMPLICATIONS MET WITH IN HYSTERECTOMY FOR FIBROIDS AND THE BEST METHODS OF DEALING WITH THEM.

Being the Opening Paper of a Discussion at the Medical Society, London.

By SIR JOHN BLAND-SUTTON, F.R.C.S.,
Surgeon to the Middlesex Hospital.

Twenty years ago abdominal hysterectomy for fibroids was performed by clumsy methods and attended by a high mortality. In the Middlesex Hospital, during 1892, the uterus was removed on account of fibroids three times; two of the patients died as a result of the operation, but in 1912 there were 71 abdominal hysterectomies for fibroids in the same hospital, and all the women recovered. A marvellous improvement in twenty years. To-day, hysterectomy for fibroids is a common operation, with a mortality varying from 1 to 5 per cent. in the hospitals of London, general and special.

I have chosen 1892 for comparison with 1912 because it was the year in which Baer, of Philadelphia, introduced the method now known as subtotal hysterectomy, and inaugurated a new era in the surgery of the uterus.

The technique of the operation varies very little with different surgeons, and I believe that the small mortality attending this operation can be further reduced. During the last ten years discussion has mainly centred around the subtotal and the total operation. I do not propose to discuss technique, but I believe some valuable information can be obtained by a consideration of the visceral complications associated with fibroids. So many of these tumours have been removed that there are surgeons who can count their hysterectomies in hundreds, and I believe that some useful facts can be collected if they would be willing to relate their experience in regard to the effects of fibroids on the circulatory system, the thyroid gland, the renal organs, and especially in relation to diabetes. These are conditions on the borderland of medicine and surgery. It will also be interesting to learn how surgeons deal with certain visceral lesions which occasionally complicate fibroids, such as cancer of the colon, injury of the ureters, and gall stones.

Cardiac Lesions.

Fibroids are often present in women suffering from chronic cardiac disease, and it has been maintained by several writers that uterine fibroids cause degenerative change in the muscular tissue of the heart. It is true that many patients with fibroids have valvular lesions, a consequence of rheumatic fever, and in many women who have been reduced to a condition of profound anaemia by a submucous fibroid the heart yields a loud murmur on auscultation. I have had careful observations made on the cardiac condition of women with fibroids, and there is nothing which can be described as peculiar to the influence of these tumours. It has been my practice for many years, in selecting house-surgeons, to choose officers who have filled a resident appointment under a physician. All patients with fibroids, before being set down for operation, are the subjects of a careful medical examination.

On a dozen occasions I have removed the uterus containing large fibroids, although the heart has furnished murmurs, clearly due to valvular lesions, when an examination by a competent physician has shown that compensation has been satisfactory and that an operation would not be attended with unusual risks. Indeed, in some instances the removal of a uterus big with fibroids from a patient with valvular disease will relieve an embarrassed heart. For example, a stout woman, aged 50, with a large ovarian cyst and a fibroid the size of a football, suffered from dyspnoea, due to a dilated heart and myocarditis. The anaesthetist would not risk a general anaesthetic, but we felt that if the tumours could be removed great relief would follow. The tumours were removed under an intradural injection of novocain. Convalescence was rapid, the cardiac symptoms disappeared, and the patient soon became robust, and has since led an active and useful life.

The heart is a very adaptable organ, and it is comprehensible, when we consider the size and vascularity of some fibroids, that the extra amount of work thrown upon it would lead to its enlargement. I believe that some cases of sudden death which occur within a few days of hysterectomy for fibroids happen in women the subjects of chronic, but unrecognized, disease of the heart. Some of these deaths are attributed to pulmonary embolism, but no death should be so assigned unless a *post-mortem* examination has been made and the embolus found.

On this occasion I do not propose to discuss fatal post-operative pulmonary embolism, except to remind surgeons that recorded statistics indicate its occurrence in 1 per cent. of women who submit to abdominal hysterectomy for fibroids. I have recently published evidence which indicates in no uncertain way that it is often due to the exuberant use of buried sutures for closing the incision in the abdominal wall.

The Thyroid Gland.

From time immemorial it has been known that some mysterious relationship exists between the thyroid gland and the genital organs. No explanation has been found. The brilliant suggestion of Gaskell, in his fascinating account of *The Origin of Vertebrates*, that the mammalian thyroid is the representative of the uterine glands of a palaeostracan ancestor (of which the scorpion is a type), stimulates but fails to satisfy. To-day the matter is further complicated by the discovery of a relation between the hypophysis and the genital glands on evidence at which even the most practical surgeon cannot scoff.

On three occasions I have removed a uterus, containing fibroids, from women who at the time of the operation possessed goitres. I have been surprised on seeing the patients six months after the hysterectomy to notice marked diminution in the size of the goitrous thyroids.

In 1908 a spinster, aged 44, suffered from menorrhagia due to multiple fibroids, but she had exophthalmic goitre. It occurred to me that as the removal of the uterus for fibroids causes a goitre to shrink, such a sequel might be expected if hysterectomy was performed on this patient. After careful consideration I removed the uterus with the ovaries and tubes by the subtotal method. The operation was performed at the Middlesex Hospital, and lasted twelve minutes. Chloroform was used for the anaesthesia. Before operation the patient's temperature was 99° F., and the pulse-rate 130. Twenty hours after the operation her temperature was 102° F. and the pulse-rate 140, but the thyroid gland had markedly decreased in size and the eyeballs were less prominent. Forty-eight hours after the operation she was in a desperate condition. The temperature was 104° F., pulse-rate 180, and the thyroid gland had further diminished in size. The patient died fifty-six hours after the operation. A *post-mortem* examination was not permitted. This experience confirms the opinion that women with well-marked exophthalmic goitre are bad subjects for any operation.

Diabetes.

The presence of sugar in the urine is, as a rule, a contra-indication to hysterectomy for fibroids. The urine of all patients requiring hysterectomy who come under my care is carefully examined for sugar.

It is a serious responsibility to operate on a patient whose urine contains sugar, but the risk must be faced in exceptional cases. A widow, aged 43, passed sugar in the urine to the extent of 5 grains an ounce. She suffered from menorrhagia, her menstrual periods lasting on an average ten days, the excessive bleeding depending on a large submucous fibroid. The patient wished to re-marry, and was deterred from doing so, not by the glycosuria but the menorrhagia. She wished to have the tumour removed, and was willing to face the risks. I performed subtotal hysterectomy. The operation was followed by a quick and uneventful convalescence; the patient married again, and was in good health three years after the operation.

The following case is more instructive. A married woman, aged 69, had a large uterine fibroid. There was free bleeding from the vagina at frequent but irregular intervals, which led me to suspect that cancer existed in the body of the uterus as well as a fibroid. The patient was diabetic, the urine contained 10 grains of sugar to the ounce. I performed subtotal hysterectomy in 1904. The uterus contained a large submucous fibroid and a cancerous mass the size of a tennis ball. The patient recovered. She was alive and well in 1912, eight years after the operation.

It is, I am sure, as a rule a wise thing to abstain from performing hysterectomy on diabetics, especially young women. I have gathered from facts related to me by surgeons that such operations are attended with a high mortality. In some cases hysterectomy has been performed without the surgeon suspecting diabetes until an abundant diuresis and the odour of the patient's breath, or the supervention of coma, led to an examination of the urine.

Before leaving the subject of diabetes in relation to hysterectomy there is one aspect of it which is worth consideration. A large amount of evidence has been accumulated which tends to show that there is some interaction between the hypophysis and the genital glands. In acromegalic women menstruation is suppressed, and in some of them the urine contains sugar. Experimental evidence has also been adduced which is supposed to prove that the hypophysis enlarges temporarily during pregnancy. Marek reported the following observation. A woman aged 26 was in the eighth month of pregnancy when she noticed that her gloves and boots became too tight. Her fingers thickened, and the rings on them had to be removed with a file. She became sleepy and thirsty; sugar appeared in the urine. Gradually she assumed the coarse skin, thick lips, and projecting lower jaw so characteristic of acromegaly. The child survived its birth, and in a few months the signs of acromegaly in the mother disappeared.

A large submucous fibroid produces similar changes in the uterus to those set up by the growth of a fetus. Glycosuria occurs with sufficient frequency, as a complication of normal pregnancy and of fibroids, to make it conceivable that the uterine changes incidental to the growth of the fibroid may influence the hypophysis, and thus be indirectly responsible for the glycosuria.

Some years ago it was the fashion to tell a woman who wished to have her uterus removed for fibroids that after the operation the skin thickens, and she would grow fat and coarse. Experience teaches that the reverse is true. Women with large submucous fibroids are more or less in a condition resembling chronic pregnancy. Such patients sometimes become gross and fat, and acquire a thick skin like acromegalics, but after a successful hysterectomy these unpleasant conditions disappear, as in Marek's patient.

We know nothing of the condition of the hypophysis in patients who have had the uterus removed for large fibroids. I hope pathologists who have an opportunity of inquiring into this matter will help us.

The Renal Function.

The close relationship of the uterus, bladder, and vesical segments of the ureters leads to many complications when the uterus is occupied by fibroids, and the changes which follow in the bladder, ureters, and kidneys, if the tumour is of such a size and shape as to cause retention of urine, are well known. The urine of patients with a large cervical fibroid, or a fibroid of the body of the uterus impacted in the pelvis often contains slight traces of albumin. This is not a contraindication to operation, and the albumin quickly disappears after the tumour has been removed. Some years ago systematic examinations were made of urine drawn from patients under my care within the first thirty-six hours after pelvic operations, such as ovariotomy and hysterectomy, and it was found in nearly every case to contain the colon bacillus. I am unable to offer any explanation of its presence. This is worth mention; obstetric physicians are unable to make anything better than a guess as to the mode by which the urinary system is invaded by the colon bacillus in that troublesome condition known as pyelonephritis of pregnancy. Chronic urinary troubles of septic origin do occur in association with uterine fibroids, but I have never seen anything comparable to the acute suffering which is sometimes seen in pregnant women when the colon bacillus invades the kidneys and ureters. One of the most serious accidents that happen in the course of hysterectomy is an injury to both ureters. This is serious enough when the accident is detected in the course of the operation, but is more unfortunate if it remain undetected until the nurse draws attention to the emptiness of the patient's bladder. No reliable estimate of the frequency with which ureters are injured in the course of hysterectomy for fibroids is forthcoming. British surgical literature contains few references, but it is only necessary to turn over the pages of the *Zentralblatt für Gynaekologie* to be satisfied that they are often cut. At the present time, when a ureter is injured in the performance of abdominal hysterectomy, the surgeon endeavours to anastomose the cut ends. Failing in this, he implants the proximal end in the bladder wall. Urologists do not approve of this; they insist that when a ureter is engrafted into the bladder it becomes sclerosed by chronic ureteritis, which narrows and finally obliterates its lumen. This sclerotic obliteration does not happen in every case. Lockyer, in removing a fibroid which burrowed between the layers of the broad ligament, wounded the bladder and divided the right ureter; he repaired the hole in the bladder and removed the kidney. During the twenty-four hours following the operation the bladder remained empty; Lockyer reopened the abdomen and found the left ureter cut; he engrafted its proximal end into the bladder through the wound which had been already sutured. Convalescence was retarded by a urinary fistula, but Lockyer's resourcefulness was rewarded, for the woman recovered, and was in good health three years later.

Many years ago I was present at a hysterectomy when a gynaecologist cut three inches out of a ureter, mistaking it for an adhesion. He tied the proximal end of the cut ureter with a silk thread. The patient, a middle-aged woman, recovered without an untoward sign and remained well. This led me to take a special interest in this method of dealing with a cut ureter. In 1909 I expressed the opinion that it is possible and probable that a ureter has been tied in the course of a hysterectomy, and the patient has recovered without any one having a suspicion that such an accident had happened.

Dr. J. D. Barney collected and classified the reports of 62 cases in which the ureter was injured. Of these, 16 were bilateral and 46 unilateral. The majority of the accidents occurred in the course of hysterectomy. He notes that sudden occlusion of the ureter by a ligature often produces no symptoms; sometimes it is followed by pain and tenderness in the kidney, which subside spontaneously. In some instances the accident is followed by hydronephrosis, and he reiterates the opinion, which I have already expressed, that there is strong probability that a ureter is often unconsciously tied in the course of hysterectomy. If gynaecologists would tell us how they treat cut ureters, this discussion would be justified, for if it is only necessary to tie the proximal end of the cut ureter the way out of an embarrassing accident would be greatly simplified.

Fibroids and Cancer of the Colon.

Fortunately uterine fibroids rarely contract adhesions to the intestines unless the uterus and Fallopian tubes have been the seat of infection, gonorrhoeal or puerperal. It is unusual for the surgeon to be hampered with bowel complications when he undertakes hysterectomy for fibroids, but he may have to deal with cancer of the sigmoid flexure of the colon or the upper part of the rectum. It has happened to me on several occasions, in the course of removing the uterus for fibroids, to find cancer of the sigmoid flexure. After completing the hysterectomy I excised the cancer in the colon and joined the cut ends of the bowel by an end-to-end anastomosis.

In a woman blanched from profuse and oft-repeated uterine bleeding, due to a cervical fibroid, I removed the uterus and its neck (total hysterectomy); whilst adjusting the intestines preliminary to closing the incision I detected a cancerous focus in the sigmoid flexure of the colon. The patient had sustained a serious operation, and in her weak condition I did not think it wise to excise the bowel. She made an excellent recovery and was kept under observation. Two months later I excised the growth and she

recovered easily from the operation and was alive and in good health two years later.

The growth of cancer in the colon is often slow and insidious, and there is a massive form of colic cancer which, during its symptomless stages, is indistinguishable, especially when the mass lies in contact with the uterus, from a subserous fibroid. The diagnostic signs are sometimes especially deceptive if there should at the same time be a few small hard fibroids in the uterus.

Sometimes I have undertaken an abdominal operation hoping to find an impacted fibroid, but have found a hard cancerous growth in the sigmoid flexure impacted in the pelvis, and the operation has ended in colotomy. In happier cases I have started on the operation with strong suspicions that the patient had a malignant mass in the bowel, but found an impacted fibroid. It is a most evil combination when a fibroid of moderate size occupies the uterus and a massive cancer of the sigmoid flexure adheres to it. I am not alone in such experience; some of my gynaecological colleagues have occasionally stumbled on a cancerous pelvic colon in mistake for a fibroid, and have assigned the patients to their surgical associate for the operation of resection.

Uterine Fibroids and Gall Stones.

Gall stones are common in women, so are fibroids, and it sometimes happens that women come under observation with the two conditions giving so much trouble that the surgeon is puzzled to know which should be dealt with first. On three occasions I have removed a calculous gall bladder in the course of hysterectomy for fibroids. In each instance the uterus was so large as to require for its removal an incision reaching nearly to the ensiform cartilage. In these circumstances the removal of the gall bladder was a simple operation. In one instance the inflamed gall bladder adhered to a large subserous fibroid. In two other instances of this combination I removed the gall bladder six months after the hysterectomy. The only definite rule which I think can be laid down in the matter is this: If a woman deeply jaundiced in consequence of a stone impacted in the common duct also suffers from a uterine fibroid which so troubles her as to make it desirable to remove the uterus, I should prefer to remove the stone from the common duct first, because it is well known that cholaemia predisposes to haemorrhage. Hysterectomy in a woman with persistent jaundice is an operation which would place her life in the gravest peril from post-operative bleeding.

The pelvic complications of uterine fibroids, such as ovarian cysts, pregnancy, pyosalpinx, inflamed appendix and the like, are so common and so well understood that they have no place in this discussion. We are anxious to obtain the experience of those who perform hysterectomy for fibroids, especially in relation to such complicating conditions as heart disease, goitre, diabetes, renal disease, and cancer of the intestine. Fatal accidents in technique (such as haemorrhage and shock) occur occasionally, like railway collisions and deaths from lightning, but post-operative deaths from heart disease, pulmonary embolism and injuries to the ureters will be fewer if we profit by the experience of those who have faced these difficulties. In this way the risks of hysterectomy for fibroids, though small, will be reduced, and, small as they are, I am sure we have not reached the irreducible minimum.

THE annual dinner of the Anglo-American Continental Medical Society was held in Paris on Saturday, October 18th, at the Hôtel Majestic, with Professor Robert Saundby of Birmingham in the chair. The other guests were: Drs. du Bouchet, Castex, Desfosses, Galezowski, Lutaud, Field Robinson, and Mowat; and among the members of the club present were: Dr. Eugene Dupuy, Dr. Koenig, Dr. Leonard Robinson, Dr. Warden, Dr. Magnin, and Dr. Robert Turner (Honorary Secretary). After the loyal toasts had been duly honoured, the Chairman proposed the prosperity of the society, pointing out that it constituted a valuable link among Anglo-Saxon physicians practising on the Continent and the Mediterranean littoral, and served to maintain not only a friendly bond of union, but the professional traditions which are honoured alike in England and the United States. The toast was acknowledged by Dr. Leonard Robinson, who proposed the health of the Honorary Secretary, and congratulated him on his approaching marriage.

Remarks
ON
THE TREATMENT OF SPASTIC PARAPLEGIA (LITTLE'S DISEASE).

Being an Introduction to a Discussion in the Subsection of Orthopaedics of the XVIIth International Congress of Medicine.

By E. MUIRHEAD LITTLE, F.R.C.S.Eng.,
Senior Surgeon to the Royal National Orthopaedic Hospital, London.

Pathology.

We are not now concerned with the pathology of spastic paralysis further than it affects our methods or proposed methods of treatment. It is well known to all of us that the causes are lesions from haemorrhage or disease, or developmental defect of the upper motor neuron affecting particularly the pyramidal tracts. Such abnormality may be visible to the naked eye, or only to be found by microscopic investigation. Cases of the latter kind have been recorded by J. H. W. Rhein and by S. Miura. The last named has shown by a review of the literature of the subject to what very various initial processes the brain lesions in cerebral diplegia may be due.

In this connexion it is well to remember that there are cases of hereditary or familial spastic paraplegia, which are generally progressive and can only be temporarily improved by treatment. If the statement of Pierre Marie that the centres in the cord constitute "une machine toujours sous pression," the manifestations of which are controlled and inhibited by the brain, be accepted, it is clear that an interference with the paths of the inhibitory impulses will release these manifestations, and that the spastic symptoms may be considered as a disorderly exaggeration of the normal muscular tone. Centripetal stimuli, whether sensory or other, are no longer controlled by the centrifugal inhibitory impulses, which either through central defects never originate, or, if originated, are unable to reach the anterior horns in the spinal cord.

Thus there is no longer any just proportion between the stimulus and the muscular contraction. The slightest centripetal stimulus in an extreme case will cause the most violent muscular contraction, not only of the muscle or muscles connected with its place of origin, but also of the whole muscle group or of many groups of muscles in many parts of the body.

As Küttner has so tersely put it, "The subcortical centres are continually spurred but not bridled."

Rationale of Treatment.

The lesion being, then, a radical one, incapable of true cure, the most that science and art can hoped to achieve is improvement, by attempting to restore the lost balance by interference at some point or points in the nervo-muscular combination.

There may be said to be too little (defect) weight in one scale of the balance. If we cannot restore equilibrium by adding what is lacking to the scale which kicks the beam, we can perhaps make the beam level by removing something from the overloaded scale.

Clinically, the manifestations of spastic palsy range from slight hypertonus, say, of the triceps cruris, to general rigidity of the limbs and of some of the muscles of the trunk and neck. Therefore it is clear that the amount of justifiable interference must vary greatly.

Historical.

Before proceeding to deal with the question of present-day treatment, it may not be out of place to review briefly past practice.

When in his lectures on deformities in 1843 W. J. Little described "universal rigidity of the muscular system, or of the flexor muscles only, in newborn infants," a disease which has since become known by his name, he limited his recommendations as to treatment to advising manipulations, instruments, counter-irritation of the spine, and tenotomy as a *dernier ressort* only when secondary structural shortening had supervened. He instanced as the

parts requiring section, "the adductors of the thighs, the hamstrings, gastrocnemii, and adductors of the feet." In suitable cases this treatment rendered good results, and it was for many years the usual treatment among orthopaedic surgeons, if we accept the phenomenal outburst of tenotomy by Jules Guérin, who divided sixty or more muscles at one sitting.

Among general surgeons, however, the treatment of spastic palsy received very little attention, and many physicians, and especially neurologists, condemned all operations, Gowers writing as lately as 1899, "The tendo Achillis is sometimes divided for the contracture of the calf muscles, but the operation is useless and ought not to be performed."

At the same time that the physicians deprecated operation, medical treatment of the disease was at fault, except in rare syphilitic cases where the results were doubtful. Dejerine wrote in 1892: "Les plus souvent, les enfants . . . sont condamnés à l'inactivité pour toute leur existence."

Nevertheless D'Heilly, by the use of potassium bromide, extolled by Charcot, obtained a temporary cessation of contracture, but the spasm returned on the administration of the drug ceasing.

Some writers have attributed to syphilis an important rôle in the causation of spastic palsy. For instance, Delbet tested 13 cases, and found the Wassermann reaction positive in all. On the other hand, H. R. Dean, who examined 330 inmates of the Wilhelmstift, an asylum for idiots at Potsdam, found 15 cases of congenital spastic diplegia, in only one of which was the Wassermann reaction positive.

Whatever part syphilis may have in the causation of these cases, there is no reason to think that antisyphilitic treatment can benefit them, seeing that the damaged tissues are beyond repair.

Recent Advances.

Within the last quarter of a century orthopaedic surgeons have much increased the scope of treatment. Instead of restricting surgical interference to tenotomy only of those tendons which are structurally shortened (secondary contraction), it is now recognized that spastic muscles and tendons may and often should be divided, lengthened, or ruptured.

In 1890 V. P. Gibney recommended and had performed tenotomy of spastic muscles, and maintained the corrected positions for months afterwards by means of splints, with a record of great improvement.

In 1891 A. Lorenz reported a case of a young man of 17 with marked contracture of the hamstrings and of the plantar flexors of the foot, which produced contraction of the knees and talipes equinus, and divided or excised ten tendons at one sitting. The patient, who before the operation could hardly stand up, was afterwards able to walk and to remain for several hours at a time on his feet.

In 1896 Vincent performed tenotomies in cases of spastic paralysis, and devoted great care to after-treatment by splints and walking apparatus and re-education, with good results; and in 1903 Robert Jones strongly recommended a similar method of treatment, comprising tenectomy and tenotomies, and tendon lengthening and transplantation. He wrote; "No opportunity should be lost of performing a tenotomy. Even in mild cases, where a spastic tendon is felt, let us ruthlessly divide it." He recorded good results and deprecated pessimism.

In 1904 Bastow reported good results in cases of diplegia after transplantation or elongation of the hamstrings.

In 1905 Lange, and in 1906 Hoffa, also recommended transplantation of tendons, following Codivilla, who in 1900 had strongly recommended this procedure.

Soulié, in 1907, had performed arthrodesis of the tibiotarsal articulation, and in 1909 P. Delbet, finding after tenotomies that the thigh was rotated inwards, did an osteotomy and rotated it out. The result reported—confirmed by Kirmisson—was good.

Treatment of Nervous System.

During the last five years the attention of surgeons has been directed more to the nerves and nerve roots than to the muscles and tendons.

In 1908 J. J. Nutt of New York proposed and practised an operation to which he gave the name of "intraperineural neurotomy." The sheath of the sciatic nerve was opened and separated from the nerve, the whole of which was divided and then sutured, and finally the sheath was sutured and the wound closed.

In the same year O. Foerster of Breslau proposed to adapt to spastic palsy the operation which had first been performed for pain by Sir William Bennett. On his suggestion Tietze divided several of the posterior nerve roots inside the spinal canal.

Modifications of this operation were proposed in 1910 by Guleke and by A. S. Taylor. The former recommended division of the roots outside the dura mater, while the latter advocated partial division of half of each of the roots supplying the regions affected, instead of complete section of alternate roots.

Allison and Schwab in 1909 introduced the practice of injecting alcohol into the nerves supplying the spastic muscles, thereby causing motor and sensory paralysis and peripheral degeneration of the nerve.

Stoffel in 1911 divided part of the fibres of the motor nerves supplying the muscles. Vulpius in the same year urged nerve transplantation in preference to rhizotomy.

Objectives of Treatment.

The immediate objects of surgical treatment may be stated to be:

Correction of deformity, and

Abolition or diminution of spasm, with the ultimate end in view of enabling the patient to place the limbs in such a position that he may use them properly, but before undertaking any treatment the surgeon must form an estimate of the mental capacity of the patient. If this seems to be normal or even approaching to normal, it is worth while to undertake thorough and long-continued treatment, in the belief that the patient's will power and intelligence will enable him to take advantage of every improvement. If, however, the patient is idiotic, there is little hope of his learning to use his muscles, and disappointment is nearly sure to follow treatment. In a case of doubtful intelligence it is desirable to give the patient the benefit of the doubt, and to undertake the treatment, always remembering on the one hand that parents generally overestimate the intelligence of these children, and on the other that improvement in the physical condition is nearly always accompanied by improvement in the mental condition, sometimes to a surprising extent. Almost all observers are agreed upon this point, and also in the opinion that treatment must be patient, prolonged, and persevering.

Age Suitable for Treatment.

The question as to the appropriate age for beginning treatment is answered differently by different surgeons. Some—for example, Froelich—would begin at 3 years old, while others—for example, Kirmisson—prefer to wait until the age of 7. It appears to me that the sooner correction and training can be begun the better; and I am disposed to agree with Froelich rather than with Kirmisson, for the somewhat complex acts of maintaining the erect position and of progression in it require the development of certain automatic paths and centres in the central nervous system, which paths are normally developed before the age of 3 years. Given fair intelligence, it is surprising how quickly a child will develop powers of walking erect, as soon as the surgeon has rendered the physical condition of the limbs suitable to the purpose. In a case of severe bilateral congenital varus, the patient, aged 5 years, had never walked, but although he was of poor intelligence, he was able to walk well less than a month after the deformity was corrected.

Recapitulation.

It will be seen from the following list that the means of treatment fall into two categories, which, however, are not mutually exclusive, because the employment of some of both categories may be advisable in any individual case. For instance, no one will deny the advisability of tenotomy of a structurally shortened muscle for the relief of deformity, although spasm in such a case may have been

abolished by one of the operations on the nervous system. Nor will it be doubted that after muscle and tendon operations have failed to produce a good result, more radical operations on the nervous system may be necessary and beneficial.

Manipulations Splints, etc. Walking instruments Tenotomy Tenoplasty Tenectomy Tendon lengthening Myorrhexis Myotomy Arthrodesis Osteotomy	Proceedings intended to counteract effects of disordered nervous influence.
Neurotomy (complete) Neurotomy (partial) Alcohol injection of nerves Nerve transplantation Rhizotomy *	Proceedings intended to prevent disordered nervous influence.
Re-education	Intended to develop and improve latent powers.

SELECTION OF METHODS AND CLASSIFICATION OF CASES.

The treatment to be adopted must vary with the degree of severity of the case, and in estimating this I have found it necessary to classify cases from a clinical point of view, leaving out of consideration whether the disease is a spinal paraplegia, a cerebral diplegia, or a hemiplegia.

Cases may be tabulated according to the muscle groups affected, roughly, as follow:

Where there is—

1. Foot contracture,
2. Foot contracture and knee contracture,
3. Foot contracture and knee contracture and hip contracture.

These are the three main groups, any one of which, or any combination of which, may be affected, but as a rule the more peripheral the group the more easily is it affected.

In Group 1, talipes equinus, from contracture of the great calf muscles, and varus from the contracture of the adductors of the foot, form the commonest deformity. If structural shortening has not taken place, by persistent steady pressure of the hands the deformity may be overcome and the foot forced into dorsiflexion. It will then generally be found that the sole has become flat, and that the varus deformity has been converted temporarily into valgus. In such a case, if the child is not idiotic, it can generally get about in a digitigrade manner, with some help, but the knees are generally flexed by the action of the gastrocnemii, even though there be no spasm of the hamstring muscles. The long-continued use of right-angled splints, if they can be borne, may result in the cessation of spasm of the calf muscles, or in its diminution to such an extent as to enable the heels to be placed on the ground. But such a result is rare, and it is hardly worth while to undertake tedious treatment on the chance of success, when the end can be well attained by other means. The objection offered by some surgeons to tenotomy is that talipes calcaneus is likely to ensue. For instance, Shaffer abandoned tenotomy on this account. Should calcaneus occur it can be remedied best by arthrodesis. It is, however, preferable to lengthen the tendon by open operation after the method of Anderson (so-called Z method), by which the amount of elongation can be regulated better than by the subcutaneous method. The limb, including the knee, should be maintained in the corrected position for weeks, by gypsum or other retentive apparatus.

In Group 2, in addition to the treatment of the ankle deformity, the spastic knee flexors have to be dealt with. Subcutaneous tenotomy is here out of place on account of the neighbourhood of nerve trunks, but we have the choice of open section, or lengthening, or tendon transfer, or myorrhexis, any of which will give a good result. In my personal experience I have found lengthening of the semitendinosus and semimembranosus and simple section of the biceps satisfactory, and I have never known genu recurvatum to follow the operation. This deformity is, however, regarded by Lorenz (who favours myorrhexis here as elsewhere) as a desirable result.

Tendon transplantation is, in my opinion, an unnecessary refinement, but some surgeons (for example, Lange) have preferred it. Whitman, with whom I agree, attributes its good effects "in a far greater degree to the removal of the deforming force than to the extending action of the flexor muscles."

In Group 3, in addition to the foregoing procedures, the deforming muscles around the hip have to be dealt with, and these are chiefly the adductor group, which produce that most disabling deformity, when severe, which causes scissor-gait. Simple tenotomy, myorrhexis, or partial excision of one or more of the group, will all give good results. My personal preference is for excision of an inch or more of the upper ends of the adductores longus and brevis, the gracilis, and even the pectineus and part of adductor magnus. There is remarkably little bleeding from spastic muscles, and the wound can be closed and sealed with collodion. As above mentioned, Delbet has performed osteotomy for internal rotation after operations on the adductors, but this proceeding can seldom be necessary. The tensor fasciae femoris can be divided if it causes fixed flexion of the hip. Gibney has excised the whole muscle and tendon.

Whatever particular way of overcoming the spasm of the adductors is followed, all authors are agreed on the paramount necessity of immediate correction and fixation in a position of full abduction; for instance, Sherman in 1899 fixed the thighs in abduction at 180 degrees.

When by the abrogation of the power of action of a muscle for a long time the centres in the cord have been given a rest, it often happens that with judicious care of the patient the spasm will not return, or not to an unmanageable extent, so that it can be controlled by appropriate portable instruments, and the patient may have fair use of his limbs.

OPERATIONS ON THE NERVOUS SYSTEM.

If, however, the proceedings briefly above described, of which the objectives are the muscles, tendons, and bones, followed by careful training and manipulation, fail to diminish spasm permanently, recourse may be had to operations on the nervous system. Of these, neurotomy, partial or complete, alcohol injection of nerve, and nerve transplantation, have for their aim the cutting off temporarily or even permanently the spastic muscles from their nerve supply or sensory connexion with the spinal cord. Nutt's operation, and Allison and Schwab's, cause degeneration of the whole mixed nerve, including afferent and efferent fibres below the point of section, and, as regeneration will take at least a year, during that time the hitherto spastic muscles are at rest, as well as their cord centres, and the antagonistic muscles get a chance to develop.

Although Lorenz, who was one of the first to advise and perform neurotomy, no longer favours it, Allison and Schwab have reported some very good results, and the operation is certainly deserving of a more extended trial. In some situations, however, there may be a great difficulty in finding the nerve. Thus these authors reported that in one case the search for the obturator nerve was abandoned after one and a half hour's trial, and subsequently a second operation was necessary to locate it.

Partial neurotomy has been advocated, as before mentioned, by Stoffel, who attempts to divide the motor fibres only of the nerves, such as the crural, sciatic, and obturator in the nerve trunk before its division, and after electrical test of the exposed nerve. But he finds it difficult to do enough and not too much. Lange, Vulpius, Biesalski, and Lorenz have criticized the method adversely as uncertain and difficult. Vulpius is strongly in favour of nerve transplantation, a method which in his hands has given good results—namely, 50 per cent. successes. The operation is not an easy one, and has not yet been much practised except by its author.

FOERSTER'S OPERATION.

There remains to be considered the brilliant advance made by Professor Otfried Foerster in 1908, which I have already mentioned. I shall deal with it briefly, because the Section will have the advantage of a report upon it by

* I have used the word *Rhizotomy*—derived from two Greek words—in preference to *Radicotomy*, which some German writers use. The latter is a hybrid, and I know of no argument in its favour.

Professor Küttner, who has had a large operative experience of the method.

The operation aims at breaking through or much weakening the sensory arc of the reflex circle on whose integrity the spasm depends. Unlike most of the other proceedings, it leaves the motor impulses and their paths and the muscles themselves untouched. This is an advantage in itself if the excitability of the cord can be reduced to normal.

The operation may be performed in two stages or in one, and the nerve roots may be identified and located either near their exit from the canal or at their origin from the conus medullaris. In favour of the two-stage operation, the avoidance of bleeding into the dural sac, and of the additional shock of manipulating the cord and nerve roots on the same occasion as the laminectomy, are cited, but if the use of adrenalin by injection before and swabbing during the operation is adopted, as advised by Hey Groves, there is, as it seems to me, no advantage in doing the operation in two stages, but the contrary.

As to the site of the section, I have found that although it is easier to identify the roots near their exit from the canal, it is by no means easy to distinguish the posterior from the anterior roots, although this might be facilitated by electrical tests; on the other hand, if the section be made near the origins of the nerves from the conus, while it is easier to tell posterior from anterior roots, it is less easy to identify the individual roots; but as the mistaking, say, the fifth lumbar for the first sacral is less serious than the mistaking an anterior for a posterior root, and as, moreover, the requisite number of roots can be divided near the conus, with less extensive removal of laminae than lower down (for the whole lumbar enlargement can be exposed by removal of three vertebral arches), there appears to be a considerable balance of advantage in favour of the higher operation, in which, too, the incision is better placed for avoidance of sepsis.

It is not to be denied that the operation is a serious one, but having regard to the hopeless nature of the very severe cases—for which alone Foerster would advise it—under other treatment, it is quite justifiable. Not only is the operation severe and a good deal of shock to be expected, but for some days after the operation the patients suffer acute pain and hyperaesthesia, which, however, passes off as the central ends of the nerve roots degenerate. Spasm may in some cases return, even when a large number of roots has been divided. Whether the fears expressed by some of secondary degeneration of the cord are justified, time will alone show. So far not much evidence of it is to hand.

As yet very few cases have, as far as I have been able to ascertain, been submitted to rhizotomy for spastic palsy out of Germany. Professor Foerster last summer recorded fifty-nine operations for Little's disease with eight deaths.

In a case operated on by myself in September, 1912, the results are very encouraging, and the child is beginning to walk, but the case is not yet ready for publication.

Foerster and all others are practically agreed that the operation is only justifiable in the worst cases, where the patient is not idiotic, there is not much athetosis or epilepsy, and where other treatment is hopeless.

Finally, but not of least importance, comes as a method of treatment re-education, without which good results are not to be obtained from any operation whatever. This re-education of muscles and will must be constant, patient, persevering, and measured in time more by years than by months.

After all has been done that man can do, there will be cases in which little improvement will be made, but, for all that, there is no need of pessimism, although it must always be remembered and impressed upon the friends that such cases may be improved but cannot be completely cured.

ACCORDING to a statistical report recently issued by the French Minister of the Interior, the total number of medical practitioners in France is 20,809. The departments in which the number of doctors is largest are the following: Seine, 4,393; Nord, 811; Gironde, 614; Rhône, 585; Bouches-du-Rhône, 575. The departments with the fewest doctors are the Hautes-Alpes, 29; Haut Rhin, 32; and La Lozère, 39. There are in France 2,848 dentists, 13,066 midwives, and 11,585 pharmacists.

HEREDITARY TRANSMISSION OF SARCOMA.

BY

J. S. MANSON, M.B., CH.B.EDIN.

LIKE many other diseases which have since been proved to be of environmental origin, malignant disease was long believed in a vague and indefinite manner to be hereditary. The success of modern research in discovering that the essential causes of many diseases hitherto believed to be hereditary were of an environmental nature, gave a gleam of hope that malignant disease would in due course fall into the same category. The present-day belief in the parasitic or at least environmental origin of cancer stimulates research workers to the discovery of its cause, and so to its prevention and cure.

The most recent addition to modern research has been the analytical study of heredity, and it is interesting to note that the question of heredity in malignant disease is again coming into prominence. Bashford[1] has discussed the relation of heredity to the frequency of cancer in man, and comes to the conclusion that the difficulties of the problem are too great to admit of a satisfactory result. He was hopeful, however, that numerous experiments with short-lived animals like mice would lead to some definite conclusion. His colleague Murray[2] states that it has been part of the original plan of the work of the Imperial Cancer Research Fund to study the hereditary factor in the problem of cancer, and he has already made an important contribution to the subject. He has shown that the incidence of spontaneous mammary cancer in mice of recent cancerous ancestry is nearly double that in mice of remote cancerous ancestry. The conclusion from this is that an acquired susceptibility to cancer has been transmitted, but no light is thrown on the origin of the disease itself.

As a small contribution to the study of malignant disease in man, I give the following account of the illness and deaths of a mother and two sons from sarcoma, which I venture to think justifies the title of this article.

CASE I.

The Mother.

S. P., the mother, was born in 1869, a native of Cheshire, the youngest of a family of one brother and four sisters. At the age of 22 she married E. P., who is still alive and well. Three sons were born: W. in March, 1892; T. in July, 1894; and C. in August, 1897. There was thus an interval of two years and four months between W. and T. and three years and one month between T. and C.

S. P. had always been a healthy woman. At the beginning of 1896 she noticed a small lump about the size of a bean on the left side of the neck. This grew slowly, until it reached the size of a marble. She consulted her doctor, who advised her to have several teeth extracted, and this was done. The swelling, however, continued to increase, and in August, 1897 (eighteen months after it was noticed), it had attained the size of a walnut.

On August 3rd, 1897, C. was born, and after this the tumour grew very rapidly,

On November 9th she was admitted to the Manchester Royal Infirmary. The following extract from the register of Manchester Royal Infirmary was kindly supplied by Mr. E. E. Hughes, the surgical registrar:

"S. P., admitted November 9th, 1897; discharged November 18th, 1897. Diagnosis: Lympho-sarcoma neck, left side. Result: Home *in statu quo*."

The growth continued to enlarge, and she died from exhaustion on February 21st, 1893, about two years after the growth was first observed.

CASE II.

The Sons.

C., the youngest son of the family, had always been a healthy lad. He consulted me in September, 1912, about a small growth on the left side of the neck. The growth was about the size of a walnut, movable and painless, the skin moving freely over it. I referred him to Mr. Roberts at the out-patient department of the Manchester Royal Infirmary, and he was admitted in November, A small piece of the growth, which had increased in size, was excised for microscopical examination, The report from the clinical laboratory stated that the section showed the structure of a round-celled sarcoma.

He was sent home, and the growth continued to enlarge, until it formed a fungating bleeding mass as large as a cauliflower on the left side of the neck. On February 17th, 1913, he died from exhaustion and haematemesis.

CASE III.

T., the second son in the family, consulted me in March, 1912, about some swellings on the *right* side of the neck. He had an enlarged right tonsil with some exudation on its inner surface. The swellings were evidently enlarged glands secondary to the

diseased tonsil. Local antiseptic treatment was applied to the tonsils and fomentations to the glands. The tonsil looked healthy after a month's treatment, but the glands remained enlarged. In April I sent him to see Mr. J. W. Smith, who thought the glands tuberculous, and on May 1st removed them at the Manchester Royal Infirmary. The patient then went to the country for a month and returned looking well, but there was some recurrence of the glandular enlargement on the right side.

On October 4th he was readmitted to the Manchester Royal Infirmary, and on October 7th the glands were excised. The pathological report on the glands removed in May and October stated that they showed only inflammatory enlargement, and in the subsequent history of this patient there was no recurrence after the second operation.

In January, 1913, the patient consulted me about bleeding from the right tonsil, which was considerably enlarged; on the left side of the neck, about the junction of the upper and middle thirds of the sterno-mastoid muscle, there was a small tumour about the size of a Barcelona nut. This was freely movable and painless. I referred him to Mr. Smith, who admitted him to his wards in February. The growth on the left side was excised and a portion of the tonsil removed and both submitted to microscopical examination. The report of this examination stated: "Section of tonsil shows changes of an inflammatory nature; there is no evidence of malignant disease. Section of lymph gland shows structure of a lympho-sarcoma."

After a stay at the Cheadle Convalescent Home he returned home, but the tonsil had so increased in size that there was difficulty in swallowing and obstruction to breathing.

Mr. Smith admitted him again in April and performed an extensive operation by resecting the lower jaw on the right side, removing the soft palate and enucleating the growth from the right pharyngeal wall. This was only a palliative procedure to prevent death by suffocation, as the growth was manifestly malignant and a radical removal impossible. The pathological report of April 25th states, "Section of tonsil is that of round-celled sarcoma." The patient made a good recovery from the operation and went to the convalescent home for a few weeks, returning home in June. On June 27th I made a differential leucocyte count, which gave: Polymorphs, 40 per cent.; small mononuclears, 33 per cent.; large mononuclears and transitionals, 25 per cent.; eosinophiles, 2 per cent.; an average of three counts gave 7,500 per c.cm.

The growth from the pharynx continued to grow rapidly and formed a large mass in the parotid region and below and behind the angle of the jaw on the right side. The growth on the left side recurred and increased to the size of a Tangerine orange before death, which took place on August 17th, 1913, from exhaustion.

Portions of both growths were removed *post mortem* and submitted to microscopical examination by Dr. J. P. McGowan, of Edinburgh, who reported them to be lympho-sarcomata.

In neither Case II nor Case III was there any sign of generalized enlargement of the lymph glands.

That there are some striking facts recorded in these three histories will be generally admitted. The main outstanding facts are the death of the mother from sarcoma, originating in the left side of the neck, and the deaths of her two sons from the same disease arising in the same region. This sequence and similarity, although not conclusive of an hereditary origin, strongly favours it in the absence of other known cause. Granting a strong element of heredity, the question arises, "What has been transmitted?"

The following are the pedigrees of the father and mother (Case I) of the two sons C. (Case II) and T. (Case III), founded on information obtained from the father, who is an intelligent man, and is anxious to be as accurate as possible.

FATHER'S (E. P.) SIDE.

W. P. Father of E. P., living, aged 66.
K. P. Mother of E. P., died, aged 60, of heart failure; she had two sisters, who died of cancer of the breast, one aged 45, and the other 67.

CHILDREN OF W. P. AND K. P.

W. P. Son, aged 4, died; diphtheria.
E. P. Son, living, aged 42; father of C. and T.
A. Daughter, living, aged 39; married, three healthy children.
A. Son, died, aged 2; scalds.
E. Son, living, aged 36.
M. Daughter, living, aged 34; married, 2 healthy children.

MOTHER'S (S. P.) SIDE.

T. W. Father of S. P., living, aged 89.
M. W. Mother of S. P., died, aged 54; consumption.

CHILDREN OF T. W. AND M. W.

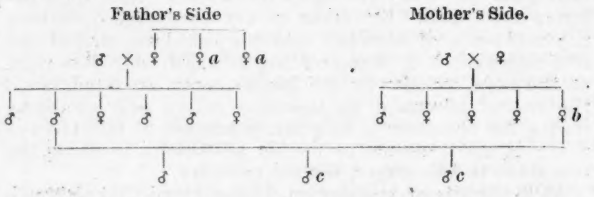
J. W. Son, living, aged 52.
F. W. Daughter, died, aged 28; consumption.
M. W. Daughter, living, aged 50, with three healthy children.
A. W. Daughter, died, aged 25; consumption.
S. P. Case I, daughter, died, aged 29; sarcoma.

CHILDREN OF E. P. AND S. P.

W. Living, aged 21.
T. Died, aged 19; sarcoma.
C. Died, aged 15; sarcoma.

It will be observed that T. W., the maternal grandfather of T. and C., is alive, aged 89, and he has no knowledge of any one dying of malignant disease either on his side or on that of his wife, M. W.

The paternal grandfather, W. P., is also alive and well, and he has likewise no knowledge of malignant disease on his side.



In this pedigree there is no evidence of malignant disease, except in the two paternal grand-aunts of C. and T., and in them it was cancer of the breast at an advanced age.

The sarcoma in Case I apparently arose *de novo*, and the following questions arise: Was this sarcoma an acquired character arising in response to some environmental stimulus, or was it a true germinal variation having its origin further back in the ancestry of the patient than can now be accounted for? Of course, neither of these questions can be answered with any definiteness, but such evidence as there is seems to point to its being a germinal variation.

In problems of heredity there is often doubt as to the similarity of supposedly transmitted characters, but in these cases the evidence is complete, clinically and microscopically, that the fatal growth in all three was of the same nature—namely, round-celled sarcoma arising in a lymph gland or lympho-sarcoma. Again, the anatomical site of the original growth in all three was practically the same—namely, the lymph glands at the junction of the upper and middle thirds of the left sterno-mastoid muscle.

If the mother, S. P., had had an extra thumb on the left hand, and the same characteristic had appeared in C. and T., the influence of heredity would have remained unquestioned, but then there are many instances of transmitted polydactylism, and but few of sarcoma. This comparison is further complicated by the fact that polydactylism appears at birth, is non-fatal, and does not hinder reproduction, while sarcoma appears later, is fatal, and may prove so before the reproductive age has been reached.

It will be noted that S. P. was pregnant with C. while actually showing marked signs of the disease.

If the growth in S. P. had been of environmental origin, say due to the *Spirochacta pallida*, then C. might have been expected to show signs of the disease at birth or soon after, or to be immune to the disease (Profeta's law) certainly later than the age of 15, when he died of it. If the environmental agency had been, say, the tubercle bacillus, then although C. would not have expected to show signs of the disease at birth, yet it would have been very unlikely in the case of a later infection for the disease to have appeared in exactly the same anatomical site as in his mother and brother.

When the clinical history of T. is considered the evidence for germinal variation becomes strengthened. This patient underwent two operations for cervical adenitis on the right side. The glands on microscopical examination showed inflammatory reaction only, and there was no recurrence in these glands after the second operation. In January there appeared on the left side of the neck (the same side as in his brother and mother) a small tumour which proved on microscopical examination to be lympho-sarcoma, while a section of the enlarged tonsil only showed inflammatory reaction. In April the tonsil had become sarcomatous, and also the lymphoid tissue of the pharynx. Here again one lays stress on the side on which the disease commenced; if the sarcoma had commenced in the tonsil, and had appeared later on the left side of the neck, then the similarity between this and the other two cases would have been less, and the argument for genetic continuity correspondingly lessened.

It might be said by some, in arguing against heredity, that T. was infected from C., but against that we have the facts that T. was less in touch with C. than any other member of the household, and very much less than his brother W. Infectivity cannot explain the onset of the disease in T. and at the same time explain the immunity of the other members of the family, who were in constant and close contact with C. during the whole course of his illness.

It is interesting to observe that the law of anticipation enunciated by Dr. Mott with regard to the heredity of mental disease seems also to be at work here. C. died at the age of 15, and T. at 19—that is, 14 and 10 years younger than their mother respectively; thus the chance of propagating the disease, supposing males to transmit, was very small indeed.

It is generally stated that the heredity of malignant growths is best expressed as a susceptibility or tendency (Mansell Moullin[3]), and that such growths only occur in susceptible individuals when exposed to some influence such as chronic irritation. It is, however, interesting to note that the sarcoma in T. did not commence in the chronically irritated glands on the right side of the neck, which were removed by operation and did not recur, but commenced on the left side, as in his mother and brother.

Thus the evidence, so far as it goes, points to the conclusion that the sarcoma which arose in the mother was a germinal variation or sport which she transmitted as a dominant character to her two sons, T. and C.

While this provisional conclusion from data so slight may seem hazardous, yet with regard to the ultimate pathology of the disease it is worthy of consideration.

In any consideration of malignant disease much turns on the view as to whether it be local or constitutional in origin. If heredity be as strong a factor in the origin of sarcoma as the foregoing cases suggest, then the view that it is of local origin would place sarcoma among the local hereditary tissue changes, such as produce hereditary cataracts or moles, and would give some support to the theory of embryonic cell rests propounded by Cohnheim and others. If the alternative view be taken, then sarcoma —or at least lympho-sarcoma—might be added to the other blood diseases having a marked hereditary character, such as haemophilia, and perhaps pernicious anaemia (Gulland and Goodall[4]).

In the foregoing cases the evidence for a local origin is strong. In all the initial lesion was a small growth on the left side of the neck, which increased in size, and only affected the lymphoid tissue in proximity to it. There was no glandular enlargement in the axillae or groins, nor was there any sign of pressure on the bronchi from mediastinal growth. As no *post-mortem* examination was made in any of the cases, it is impossible to say whether the lymphoid tissue in the body cavities was affected or not. Again, in cases C. and T. it was interesting to note that there was little constitutional disturbance in spite of the rapid advance of the disease. Their appetites were good, minds clear, and both patients were out walking five or six weeks before death occurred. Such marked constitutional disturbances as occurred towards the end were due to pain and difficulty in swallowing and breathing from mechanical pressure.

The only evidence for a constitutional origin was the condition of the blood in Case III as revealed by the differential leucocyte count made on June 27th. This showed in a normal total count a diminution of polymorphs and an increase of lymphocytes and large mononuclears. This count is evidence of a general disease, and it bears some resemblance to that in the case of nodular leukaemia reported by Reid, Calwell, and Thomson.[5]

It is to be regretted that no blood examinations were made in Cases I and II, for they might have afforded additional evidence for comparing the disease in these cases with leukaemia. The latter disease is now practically regarded as a tumour in the blood, and it may also be strongly hereditary, although from that point of view it would be a very difficult disease to study.

In reflecting on heredity and tumours one cannot help thinking that the origin and growth of tumours are in some way related to a form of sex activity of either tissue or blood cells. Sex characters or analogous properties are present in the lowest protozoa, and are necessary for the rejuvenescence of the race, because organisms reproducing themselves normally by fission eventually degenerate and decay unless conjugation occurs.

While in differentiated multicellular bodies there are specialized germ cells and somatic cells, yet each may have latent some property of the other. Wilson[6] states:

> It must, however, be borne in mind that the distinction between germ cells and somatic cells is not absolute, as some naturalists have maintained, but only relative. The cells of both groups have a common origin in the parent germ cell . . . both have essentially the same structure, and both *may* have the same power of development.

From this it may be inferred that the tissue cells of the body have latent sex characters potentially present. If this be so, then, if these sex characters become active, the stimulus to reproduction is given, and a cell mass or tumour results.

The late Sir Henry Butlin,[7] in commenting on Professor Calkin's statement "that the cancer cell, so far as we know, undergoes no processes analogous to fertilization," wrote: "One can only say that if in the future no process analogous to fertilization is discovered in the life-history of cancer cells, it is evident that the import of the process of fertilization will have to be reconsidered."

The process of fertilization is essentially the fusion of complementary sex characters, and is too well established to need reconsideration. The difficulty is to associate the process with tumour growth. If any and every cell of the body has latent sex characters, it might be suspected that if these became active at all then such activity would be displayed more in the less than in the more highly specialized cells, and it is a broad fact that tumour growths are most common in connective tissue and epithelial cells, while the highly specialized parenchymatous cells escape.

In this speculation the origin of tumours is referred to the primordial sex characters of the cell which become latent in the specialization involved in the formation of multicellular bodies. These characters are likely to become active when the specialized function of the cell is decaying with the advance of age, or has been lowered by injury or irritation. The cells themselves, being a product of the parent germ cell, a heightened sex activity in certain tissue or blood cells may be present as an hereditary character, as seems evident in the cases here quoted. Further, the now well-known influence which radio-active rays have in producing sterility may, on this hypothesis, explain the action of these rays in arresting and reducing tumour growth.

I have to thank my friends, Mr. J. W. Smith of Manchester and Dr. J. B. Naden of Warrington, for their valuable help.

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THE first Italian Congress of Medical Radiology was held at Milan on October 12th, 13th, and 14th. On the initiation of the Society of Radiology, it was organized by a local committee of which the chairman was Dr. Parola. The Congress opened with an address by Professor Augusto Righi on the nature of the *x* rays, delivered to a large audience composed of specialists from every part of Italy, with a few from France and Germany. Four reports were presented—one by Professor Maragliano on intensive apparatus in radiological technique; another by Dr. Busi on the radiographic image of the skull; a third by Dr. Tandoja on the radiology of the intestine, and the last by Professor Bertolotti on *x*-ray and radium treatment in gynaecology. Each of these gave rise to animated discussions. Afterwards, communications to the number of ninety-four were presented. In connexion with the Congress there was an exhibition of apparatus. The second congress will be held next year at Genoa under the presidency of Professor Maragliano. It was decided that a monthly review, to be called *La Radiologia Medica*, should be founded. The editor will be Dr. Perussia, of Milan, who acted as General Secretary of the Congress. Dr. Busi, of Bologna, was elected President of the Society for the coming year.

A NEW METHOD OF DEALING WITH SCARS BY MULTIPLE INCISION AND THIOSINAMIN.

By A. H. TUBBY, M.S.,

SURGEON TO THE WESTMINSTER AND TO THE ROYAL NATIONAL ORTHOPAEDIC HOSPITALS.

Scar tissue is not only unsightly and inconvenient, inasmuch as it undergoes persistent contraction, and often renders useless a part otherwise functionally sound, and so gives rise to embarrassing deformity. Incidentally, it may be remarked that those wounds which have been the sites of septic infection have always appeared to me to be followed by persistent and troublesome scarring. I think this remark is applicable to some of the hideous deformities after burns, and to contracted and useless fingers after whitlows, even if they have not involved the tendon sheath.

Fig. 1.

Fig. 2.

Figs. 1 and 2.—Contraction of the little finger in a girl, aged 18 years, following a lacerated wound. Condition prior to operation.

The method which is about to be described has been employed in scars of very considerable dimensions, in the axillae, in the groin, about the neck, at the wrist, and on the fingers. Having frequently failed to obtain any satisfactory result by excision of scar tissue, even if followed by extensive skin grafting, I have been not a little disappointed with the results. Therefore, I advise the following original method.

With a fine and strong-backed tenotomy knife a large number of multiple incisions are made transversely to the bands of keloid material. The incisions are placed close together, not more than one-tenth of an inch apart; and great care is taken that they should penetrate not only into the subcutaneous fat, but also extend one-quarter or half an inch into the neighbouring healthy skin. No attempt is made to arrest the haemorrhage except by pressure, and when bleeding has ceased, a solution of thiosinamin is vigorously rubbed in; and, if the scar tissue is very thick, a few drops are injected into the most prominent bands. I have had no hesitation in injecting, in children, 15 min. at a time, and in adults 20 min.; in only one case was there any effect on the heart. In that instance some slight cardiac collapse occurred for a few minutes; the patient, however, was over 60 years of age, and, happily, no permanent ill results followed.

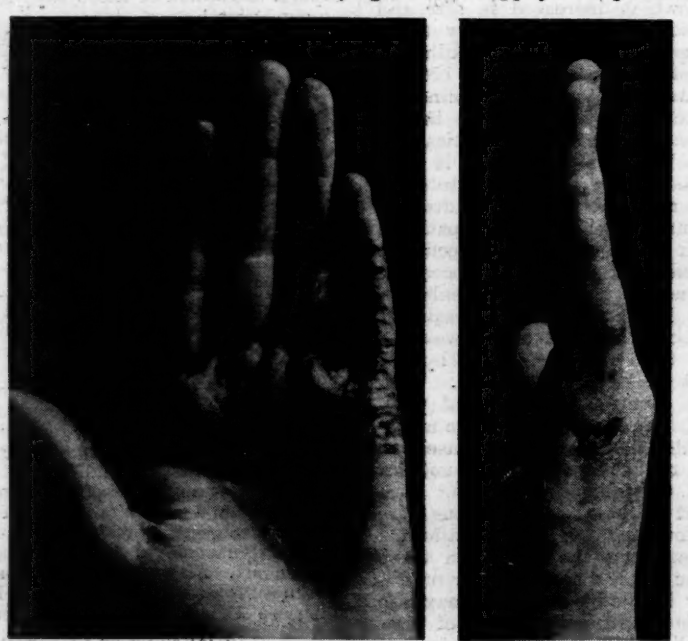

Fig. 3.

The same case fourteen days after operation. The dark transverse lines on the finger represent the scabs in the lines of the multiple incision. The finger is perfectly flexible and useful.

After the operation, the part is put up on a splint, in as much extension as possible, without tearing the soft parts, and is allowed to heal. This is accompanied by no excessive reaction and very little pain. I believe that the absence of these signs is due to the fact that the thiosinamin is not pent up within the tissues, but freely exudes through the incision. After ten or fourteen days the wound will be healed, and the mobility of the part is increased by 50 per cent. The operation is then repeated, and it rarely may be required three or four times. The result is most satisfactory; scars which have been tough, resistant, and, in the case of the fingers, wire-like, have become soft and supple, the part has regained its mobility, and its usefulness has been restored. I have carried out this method in over a dozen cases, and have been specially pleased with the results. It seems to me to be a method worthy

of an extended trial. Having ascertained the value of open incision with free application of thiosinamin in the form of fibrolysin in ordinary scar tissue I applied the method to the treatment of Dupuytren's contraction.

EIGHTY-FIRST ANNUAL MEETING
OF THE
British Medical Association.

Held in Brighton on July 23rd, 24th, and 25th.

PROCEEDINGS OF SECTIONS.

SECTION OF OPHTHALMOLOGY.

T. H. BICKERTON, President.

PRESIDENT'S INTRODUCTORY REMARKS.

THE PRESIDENT opened the work of the Section by reading an address on the influence of the British Medical Association in the establishment of ophthalmology as a special science. A full report of this was published on p. 213 of our issue for August 2nd. He then called on Mr. Hern to initiate the first discussion.

DISCUSSION ON SCHOOL CLINICS IN RELATION TO THE PREVENTION OF MYOPIA.

OPENING PAPERS.

I.—JOHN HERN, M.D., F.R.C.S.Edin.,
Ophthalmic Surgeon, Darlington Hospital.

WHAT is myopia, and how is it produced? It is an elongation of the eyeball in the antero-posterior diameter, and is probably produced by—

(*a*) Inherited tendency.
(*b*) Using the eyes for near vision.
(*c*) Congestion of the coats of the eyeball (especially the sclera), produced by hanging the head down.
(*d*) Compression of the eyeball on looking downward by the extrinsic muscles, especially the oblique.

Then how can it be prevented—or, at any rate, its *increase* be prevented, for this is the practical point of this discussion?

1. Correcting the myopia as early as possible; also the myopic astigmatism, if present, so that all strain may be removed and the eyeball allowed to develop in the right direction (that is, normal direction) as the child grows and the eye develops. This can only be done by one who knows the anatomy and physiology of the eye, and not by the optician.
2. Raising the desk and preventing stooping.
3. Using the eyes for distance as far as possible.
4. Having as perfect lighting as possible, for this not only enables the patient to see with less evolution of energy, but tends to improve the general health also, for we all know the healthy effect of the solar rays.

It is very important that myopia should not be allowed to increase. For the public services, railway companies, and many public works myopics are and will be rejected.

II.—A. F. MACCALLAN, M.D.Camb., F.R.C.S.,
Director of the Egyptian Government Ophthalmic Hospitals.

OPHTHALMIC SCHOOL CLINICS IN EGYPT.

AN elaborate system of ophthalmic inspection and treatment has been carried out during the last six years at the Government primary school at Tanta. This has been done at the expense of the Department of Public Health and by means of the ophthalmic staff of this administration. The measures adopted include the active surgical repression of trachoma, the correction of errors of refraction with the gratuitous provision of spectacles, the isolation and the treatment of cases of acute conjunctivitis. The methods of treating trachoma carried out at the school do not differ from those in use at the Egyptian ophthalmic hospitals; they vary with the stage of the disease, and my detailed descriptions are available in ophthalmic literature.[1]

Trachoma.—The number of pupils affected by trachoma in the school of about 400 pupils has only varied slightly during the period of treatment, and has remained about 96 per cent. As infection with the disease usually occurs during the suckling period, it is inconceivable that school treatment can influence the incidence of the disease. The more contagious cases of trachoma (stages 1 and 2 of the disease) in 1907 amounted to nearly 60 per cent. of the total number of pupils in the school. These cases have been reduced to about 7 per cent. in 1913. The completely cicatrized cases of trachoma (stage 4) in which a cure has resulted have been increased from 2 per cent. in 1907 to 55 per cent. in 1913. At the beginning of every school year (October) there is an influx of contagious cases of trachoma into the school, 55 per cent. of the first-year pupils being affected with trachoma of this nature at the beginning of the present session in October last. However, by the end of this session in June treatment had reduced this proportion to less than 9 per cent.

The number of pupils treated regularly was 130, or about one-third of the total number of pupils in the school; of this number about 81 per cent. were substantially benefited, as compared with 39 per cent. whose trachomatous conditions improved, although it was untreated. These untreated cases include the healthy cases and those trachomatous cases in which cicatrization had begun (trachoma stage 3) satisfactorily and in which the evolution of the disease might be expected to progress normally. Sixty pupils, or about half those treated, were subjected during the past year to surgical treatment of the trachomatous conjunctiva by scraping, grattage, etc. These operations were all performed at the local ophthalmic hospital.

Vision.—Estimation of the refraction was made by retinoscopy under atropin checked by subjective testing of all pupils who did not get $\frac{6}{6}$ vision and in whom the corneae were fairly clear. With the assistance, if required, of moderately strong spectacles (not greater than plus or minus 6 dioptres), about 47 per cent. of pupils were found to enjoy good vision and 16 per cent. fair vision, while 37 per cent. had bad vision.* This result is not unsatisfactory for Egypt; it shows that about 63 per cent. of the pupils in the school have sufficiently good vision to pass the visual acuity tests demanded previous to entering the Government service in a clerical position. Only seven pupils had more than 6 dioptres of myopia which has not increased during the time they have been under observation. In 5 of these cases both corneae were nebulous; in 2 cases there was no nebula, but pannus was evident to the naked eye.

The main cause of subnormal vision is opacity of the cornea. This opacity is partly the result of the invasion of the corneal tissue by trachoma, but is more generally caused by ulceration of the cornea due to acute conjunctivitis. In spite of the fact that about 50 per cent. of the pupils had opacity of one or both corneae, no evidence has been obtained in favour of the theory that myopia may be caused by this condition. In this connexion it is interesting to observe that the acuity of vision improves with stay in the school. If myopia was really caused by the corneal opacity, the prolonged use of the eyes at school would be followed by a startling depreciation of vision in a large proportion of those pupils with opaque corneae. The reverse, however, is the case.

Spectacles.—The number of pupils who have been ordered spectacles satisfactorily and who are now attending the school is 82. On the date of the final inspection 39 pupils were wearing their spectacles, and the supply of spectacles to 13 pupils was delayed by the maker; this leaves a difference of 30 pupils who had actually obtained spectacles, but who were not wearing them, either because they were broken or for other reasons. Besides the difficulty of keeping careless boys supplied with spectacles which they are constantly breaking, the constantly altering astigmatism is a difficult matter for the ophthalmic surgeon to deal with as, if cylinders are ordered, they must be frequently changed.

The beneficial effect on the pupils of the primary school at Tanta which has resulted from the ophthalmic treatment above described during the last six years has been so marked that the Public Health Department considers

* Good vision = $\frac{6}{6}$ and $\frac{6}{6}$ or $\frac{6}{6}$ and $\frac{6}{9}$ or $\frac{6}{6}$ and $\frac{6}{12}$. Fair vision = $\frac{6}{6}$ and $\frac{6}{18}$ or $\frac{6}{9}$ and $\frac{6}{12}$ or $\frac{6}{12}$ and $\frac{6}{12}$ or $\frac{6}{9}$ and $\frac{6}{18}$. Bad vision fails to attain any of the above standards.

that the system of treatment should be extended to the schools in other provincial towns where there is a permanent ophthalmic hospital. We find that it will be possible to give gratuitously the services of a young ophthalmic surgeon for the necessary period each day, and to provide the drugs required free of charge to the Ministry of Education, and without demanding additional credits for the purpose, in the following towns besides Tanta: Assiut, Mansura, Beni Suef, Zagazig, Sohag, Damanhur, Shebin el Kom, Minia, Fayum.

This can be carried out from January 1st, 1913, at all these towns except Fayum, where it can be carried out from January 1st, 1915. But the organization of a school clinic in Egypt requires the guidance of an experienced ophthalmic surgeon or ophthalmic inspector. The present staff of the ophthalmic inspectorate is insufficient to carry out this work, and an extra ophthalmic inspector will be required if the Ministry of Education accepts the advice and the advantages which the Public Health Department offers.

Inspection of Kuttabs.—An inspection of the pupils in forty-three kuttabs, or infant schools, at Tanta and Assiut has been carried out for several years by the ophthalmic staff of the Public Health Department. The premises were dirty, and the accommodation was insufficient to a degree which the ophthalmic inspectors considered to be detrimental to the eyes in a large number of schools. The proportion of pupils infected with trachoma at Tanta was not very different from that at Assiut, being 93.5 per cent. at the former and 92 per cent. at the latter town. However, the proportion of pupils with the most severe stage of the disease (trachoma 2) was much greater at Tanta than Assiut—43 per cent. as compared with 21 per cent. This high proportion of severe trachoma at Tanta corresponded with a high proportion of pupils with bad vision —50 per cent., as compared with 25 per cent. at Assiut. The number of pupils blind in one eye was about 4 per cent. at each town. The investigation of the ophthalmic conditions in these kuttabs has been unaccompanied by any treatment or attempt at amelioration. There is no doubt that if money was forthcoming for the adoption of a regular campaign of treatment, the ophthalmic conditions could be revolutionized within five or six years.

[The statements in this paper were supported by a series of statistical tables.]

REFERENCE.

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DISCUSSION.

Mr. MADDOX (Bournemouth) said: Not only is the tendency to myopia hereditary, but also often the literary and bookworm tastes which lead to its increase. Prolonged occupation with fine near objects with both eyes, especially if conjoined with a stooping attitude, tends to produce and increase myopia in young people. It is certainly most important to prevent persistent stooping over work. The act of reading directs more blood to the eyes, and this, too, by increasing the contents of the globe, tends to stretch the sclera where it is already weak. About 25 years ago I suggested that there should be special schools for already short-sighted children, but those started since then have not been successful, partly because they were intended for the middle and upper classes and overlooked the dislike of parents to send their children to any school that seemed out of ordinary lines. The only way, I believe, would be to have a kind of side line in some large general schools, letting all be together except for study, and having, as masters for the short-sighted, men with bright minds and original talents capable of communicating knowledge with the minimum of bookwork and of evening study. I am glad that Mr. Bishop Harman has, during recent years, been carrying the campaign into Government schools, where the difficulties will probably be less.

Mr. T. HARRISON BUTLER (Leamington) said that all theories that myopia was due to mechanical causes, such as compression of the globe by muscles, congestion due to holding the eyes down, weight of the eyes, etc., had in most cases been disproved by experimental work in Germany. Clinical evidence was also against these views, because high myopia was found in children under school age, and was also not infrequently present in one eye only. High myopia with choroidal changes was more frequently found among the working than among the educated classes, according to recent German statistics. And yet high pressure in German schools had raised the myopia incidence to 50 per cent. in the professional classes. In Norway this had been reduced by the introduction of games. The real cause of myopia was an inherent distensibility of the sclera, which was increased by bad hygienic conditions and by the high pressure common in schools, more especially in the German gymnasia. Unfortunately a quarter of a century of prophylaxis in Germany had not had the remotest effect in reducing the incidence of myopia in that country. There was a form of myopia which was merely due to overgrowth in the length of the eye, and these cases did not alter.

Dr. J. A. WILSON (Glasgow) said: I feel tempted to ask the question, Does school work produce myopia? If we can answer this question in the affirmative, then we might reasonably proceed to consider school clinics and the prevention of myopia. As matters stand in this country we have but little reliable information as to the relative prevalence of refractive defects. At present in our school clinics we deal mainly with necessitous children who have been found to have defective visual acuity when tested by the ordinary test types. If we are to obtain data by which to estimate the prevalence of the various forms of refractive defects, then the inspection of school children will require to be done in a thorough and comprehensive manner, and from observations so obtained in succeeding generations of children we shall get information for comparison and deduction. Does school work *per se* produce myopia? Does convergence and depression, with slight lateral movements of the visual axes, with the associated muscle compression, produce or aggravate myopia? It can only do so by raising the intraocular pressure. And it comes to this: Does the muscle compression associated with convergence and depression of the visual axes raise the intraocular pressure and increase the size of the eyeball? We know that the part of the eyeball that yields is not the less resisting part, as in buphthalmia, but the more resisting, and this fact contraindicates increased pressure acting on healthy or normal eye tunics. The intraocular pressure varies with the general blood pressure, and the latter varies with physical exertion or sedentary habits. The habits of the scholar, student, or clerk are sedentary. There may be in school life conditions, other than muscle compression, capable of influencing the health or the development of the eyeball. Myopia is found in children who are under school age, and the myopia so discovered is usually high in degree, and this suggests that there are other cases of lesser amount that are not discovered. Moreover, myopia is sometimes found in illiterates, and therefore we have to admit that myopia does exist apart from school work. In 844 consecutive cases of myopia I find as follows:

School children	37 per cent.
Housewives and domestic servants ...	28 ,,
Tradesmen and such like	18 ,,
Clerks and other near workers ...	14 ,,

These figures suggest that occupations involving much near work are not a cause of myopia. I have no figures of my own showing the increasing prevalence of myopia in the older scholars as compared with the younger, but as I have pointed out elsewhere, the near work of school years is an industry that is contemporaneous with the manifestations of heredity. In my cases there is evidence of heredity in 60 per cent. Heredity, then, is the principal factor in the etiology. From the presence of corneal opacities, keratitis is classed as the cause of myopia in 14 per cent. of the cases. Cataract in some form is present in 10 per cent. of my cases. I frequently find changes in the periphery of the lens in the form of punctate opacities or striae, in young people of 13, 14, 15, or 16 years of age. Apart from the ordinary fundus changes there is evidence that myopia is to a considerable extent either a disease or a condition produced by disease. It is a striking fact that when an eyeball is enlarged beyond what we consider the most useful size—

that is, emmetropia—then we frequently find evidence of disease, past or present. In my cases I find 65 per cent. are females; thus women are more liable to short sight than men. Women in many cases spend a large part of their time in the house, or work within a confined space. These people may be said to do a certain amount of near work, but I think it is necessary to draw a distinction between the convergence and depression of the visual axes in ordinary near work and the near work and other conditions associated with working in a confined space. A prisoner liberated from long confinement sees distant objects badly, but this is temporary, wears off in some weeks, and is probably accommodative in nature. There may be something in the female sex that disposes to myopia, or it may be that adaptation to near objects is evolved. I submit that there is not much evidence that school work *per se* is a cause of myopia. I think it will be time to consider the prevention of myopia when we are agreed as to the cause. Meanwhile we should correct it, encourage outdoor exercise, and give all the usual instructions.

Mr. Bishop Harman (London) said that in considering the prevention of myopia he declined to accept the hypotheses put forward as an explanation of the cause of the condition by certain German writers and experimenters; further, he said that the statistics of the incidence of myopia in Germany had no relation to the state of affairs in England. There was a vast amount of valuable material collected in England by private and public investigations, of which far too little use was made, and it would be well to take these into account before the method of educational treatment was considered. The theories of origin or cause of myopia, both negative and positive, that had been cited, were most unsatisfactory. Some of them were absurd. The attempt to show that there was no pressure caused by the extraocular muscles in convergence was untenable when they considered the soft growing eye of the child. The idea that the eye was suspended on the optic nerve in stooping, so that the globe was altered in shape, was ridiculous to any one who had studied frozen sections of the orbit. Further, he took exception to the term "malignant" as applied to myopia; there was no such condition—the term had a connotation in pathology that should not be ignored. Progressive myopia they knew, but even that did not necessarily imply liability to the disasters of myopia, for detachment of the retina was not definitely associated with any degree of defect. Granting the influence of heredity, and the influence of poor nutrition on susceptible subjects—and there was no doubt of the reality of these influences—to stop at these was to adopt the impossible attitude of the old theologians, whose mental vision was obsessed with predestination. But they were on sound ground when they recognized the extent of the influence of the long hours that the young child spent in school on close work, even when they were physically and mentally fatigued. Much had been done in London elementary schools to improve the condition of the children, and the results of medical inspection and school treatment were found to be effective, if only in that they had drawn attention to defective educational provisions, and secured removal of defects. Then they had in London an excellent system of classes for myopes. The difficulty with the parents mentioned by Dr. Maddox had been overcome by attaching these classes to the ordinary schools, so that the children were counted with the normal. The educational scheme had been so recently described by him* that he would not take up time in detail now. But he might say that there was no mystery in the method—it was merely a return to primitive methods in which the teacher was dominant, and not a lot of books. No pens and paper were used, but blackboards on which the children wrote free-arm fashion. Much was made of manual work which did not require the constant fixation of the eyes. And oral teaching was taken with the normal children. The method was a delight both to teacher and scholar, but for its success really brilliant and capable teachers were necessary. He would like to see this method of instruction adapted to all infant teaching, that is, for children under 7 years of age. He was sure that such methods would reduce the strain on the immature eyes of these little folk to a minimum, and correspondingly reduce the risk of myopia.

* *Proc. Roy. Soc. Med.*, August, 1913.

Dr. J. E. Weeks (New York City, U.S.A.) said: We must, I think, concede that myopia develops much more frequently in young individuals who do much close work, as school children, than in those who do very little close work, as observed in the American Indians. In infants, as we all know, myopia is present in less than 1 per cent. Myopia begins when vision for near objects begins—namely, at or before school life—and progresses ordinarily to the age of 15 or 20 years, except in the most serious cases, which may be progressive throughout life. While it may be, and probably is, a fact that there is an inherited weakness of the posterior part of the fibrous coat of the eye, it will also be found that many progressive myopes devote much time to close work and neglect their physical condition. They are often anaemic, suffer from errors of digestion, and are considerably below par physically; also there is astigmatism as well as myopia. These facts are sufficient to give us valuable suggestions regarding preventive measures. It is my custom to ascertain the conditions in each case, to limit the use of the eyes for close work to a few hours each day by daylight, to insist on much outdoor exercise and a liberal nutritious diet, and, probably more important than any one of the preceding, the careful correction of the refraction and muscle errors.

Dr. R. A. Reeve (Toronto) said he would like the opener of the discussion to say whether or not he was speaking of myopia existing after prolonged use of atropin or manifest myopia. He had not seen real myopia diminish. An important point was the full correction of the real myopia and the astigmatism, which latter was present in the large majority of cases and could not be ignored. As opposed to the view put forward by Dr. Butler, attention was called to a great mass of statistics collected and analysed by Dr. Risley of Philadelphia and duly recorded, the conclusion reached being that, as the result of better hygiene, including particularly the better and more general correction of myopia and astigmatism, the percentage of marked and progressive myopia showed a decided decrease.

Mr. Herbert Parsons (London) laid stress on the varieties of myopia. He had long been of opinion that there were cases of inherited myopia due to normal variations in the combinations of axial length of eyeball, corneal curvature, position of lens, and so on. These cases were often stationary. He saw no good physiological arguments in favour of the view that congestion of the head was a factor in the production of myopia. His own experiments on animals convinced him that contraction of the extrinsic ocular muscles had a very marked effect in raising the intraocular pressure. In cases of progressive myopia, whether of low or high degree, some congenital weakness of the sclerotic had to be hypothecated, but every effort should be made to guard against the ill effects of near work. He directed attention specially to the illumination of schools and factories, and to improvement of printed books, especially bibles.

Colonel Elliot (Madras) said that Dr. MacCallan's classification of trachoma was a most valuable one and so obvious that the wonder was that no one made it long ago. Trachoma was largely spread in India by the use of antimony paste, a cosmetic widely used by the more well-to-do classes. In the statistics of myopia among females allowance should be made for the preponderance of females in the population. He had never seen a myope become emmetropic, nor had he found that correcting the myopia and astigmatism carefully stopped all cases of myopia, especially in half-caste girls in India. Care of the general health, open-air exercise, stoppage of close work, etc., were all indicated. A factor in myopia which should not be forgotten was the tendency to stretching of the sclera. Hence the need for general hygiene. British Governments in tropical countries were awakening to their responsibility in connexion with the hygiene of the eye.

Dr. Marion Gilchrist (Glasgow) said that she agreed with Dr. Hern as to the tendency to myopia being hereditary, but she did not agree with him that myopic cases ever became emmetropic. She had never seen spherical myopia disappear in children. The causes of

myopia were heredity and wrong correction for refraction, adverse conditions for near work, and poor general health. The statement made by Colonel Elliot that myopia was more common in girls bore out these facts. Experimental results did not help much in this connexion. Girls nearly always got less outdoor exercise than boys. She commended to the notice of surgeons a new method of teaching sewing to children introduced by Miss Macbeth and Miss Swanson, of the School of Art, Glasgow. This method made the work most interesting to the children. Careful refraction work was the most important part of the treatment. Very bad refraction work was sometimes met with.

Mr. W. B. INGLIS POLLOCK (Glasgow) said it was impossible to draw any conclusions from the experiments cited by Mr. Butler as they were so contradictory. In the experiments on intraocular tension reported at the recent discussion in the Royal Society of Medicine it was shown how much influence was exerted by the extraocular muscles. Mr. Butler's other statement, that malignant myopia was more common in the labouring classes, and Dr. Wilson's, as to the distribution of myopia among certain classes, were contradicted by nearly all other workers. The speaker was in complete agreement with all that Mr. Bishop Harman had said on the treatment of myopia. He had several cases in which myopia had decreased under treatment, which he hoped to publish.

Colonel W. G. PRIDMORE, I.M.S., said his experience in Rangoon and Burma differed from that of Colonel Elliot in Madras. The latter found myopia more common among girls than among boys. Boys in Burma were ambitious, and the aim of all was to get a Government appointment. For this they studied hard to pass their examinations, and often lived and studied in bad hygienic surroundings. He quite agreed with what had been said regarding refractions. It was disgraceful that this work should sometimes be done so badly. Even at some of the large hospitals refractions were done badly because they were left to novices. Refraction work was looked upon as drudgery, and shirked. This might account for the position of the optician, and be the reason why so many children were sent to them.

A CRITICISM OF THE SIGHT TESTS OF THE BOARD OF TRADE.

By F. W. EDRIDGE-GREEN, M.D., F.R.C.S.,

Late Member of the International Code of Signals Committee; late Hunterian Professor of the Royal College of Surgeons.

The History of the Sight Tests.

IN 1888-9 I wrote a number of papers on colour blindness, and the Board of Trade, being dissatisfied with its colour vision tests, appointed me on the International Code of Signals Committee, and asked me to give it an efficient test for colour blindness. The result of my investigations was that the Holmgren test was a very defective test, as it rejected many normal-sighted persons and passed a large number of those who were definitely colour blind. These statements aroused a storm of opposition, as the Holmgren test was at that time considered perfect. I pointed out that a properly constructed lantern test was a necessity and was infallible, and that names must be used in any test for colour blindness. Sir Lauder Brunton communicated a paper to the Royal Society, which was supported strongly by many Fellows, including Sir William Ramsay, but was opposed by certain physicists. The discussion turned chiefly on the practical point, and a committee was appointed, both the president and the secretary being physicists. The Board of Trade wished that I should represent it on this committee, but this the Royal Society refused, and did not publish my paper in the merest abstract. The committee, though it took my evidence, would not allow me to demonstrate cases to it. As is well known, the committee recommended the Holmgren test as an efficient test, and the physicist who was secretary of the committee became the adviser of the Board of Trade, and my connexion with the Board of Trade ceased.

As is always the case with new facts, the ineffectiveness of the Holmgren test began to be slowly recognized, and several changes have been made in it in accordance with suggestions made by me without any acknowledgement. All three test skeins were used in each case, and lately two fresh test skeins similar to the two first test colours in my classification test have been added.

In spite of this, the wool test became more and more condemned. In January, 1911, a departmental committee was appointed—

> To inquire what degree of colour blindness or defective form-vision in persons holding responsible positions at sea causes them to be incompetent to discharge their duties, and to advise whether any, and if so what, alterations are desirable in the Board of Trade sight tests at present in force for persons serving or intending to serve in the merchant service or in fishing vessels, or in the way in which those tests are applied.

Many of those who were directly connected with the wool test and were strong advocates of it were on the committee, whilst not a single one of those who had caused the change of opinion was appointed. The constitution of the committeee was severely criticized in the medical and shipping papers, and the Imperial Merchant Service Guild refused to give evidence before it on account of its constitution. This committee, like the previous one, though it took my evidence, absolutely refused to let me demonstrate cases to it, though I drew the attention of the President of the Board of Trade to this, and the letter was reproduced in the medical journals at the time. Even after this the cases were not examined. This attitude of attempting to decide a question without looking at the facts, though very common, is to me incomprehensible. Had my cases been examined twenty-five years ago a great many capable men would have been spared much injustice. The imperfect knowledge of the real facts of colour blindness shown by the committee will be evident to any one acquainted with the subject who reads the report.

It is absolutely necessary, in the interests of the mercantile marine and the nation, that a new and unbiassed committee should be appointed which would settle by a careful series of experiments the standard of form and colour vision required. This could easily be done by the methods which I have adopted—namely, by having the red, green, and white lights at the required distances and testing the men with these lights with and without neutral glasses. I find 25 per cent. of men are to a certain extent defective. All these would be detected when examined in this way. The committee could then decide what degree should exclude, and the test could be arranged accordingly. There is no difficulty whatever in testing the men in this way. If, for instance, we have a man who has slight shortening of the red end of the spectrum, a red light will not be visible to him when it is clearly visible to others not possessing the defect. All coloured lights, when diminished in size and intensity, appear white, but the point at which this occurs varies with different persons. One person in 500 may be able to recognize a red light when it is invisible to the other 499. What we want to know is whether a man is able to tell between the three lights—that is, name them—at the required distance. As long as the present methods are used the uncertainty, in which a man never knows whether he will be rejected for colour-blindness at his next examination when there has been previously no suspicion of the defect, will prevail.

The Board of Trade is rejecting men now whom I should not reject, as, on the most careful examination, I consider that their colour vision is sufficient for all practical purposes. Any one of the 19 per cent. which I should not reject are liable to be rejected by the present methods. The examinations ought to be in the hands of medical men, and not in those of sailors and physicists.

It is evident that the committee has not recognized how very defective a man may be and yet pass the official test of the Board of Trade with the ease and rapidity of a normal-sighted person. Most readers would gather from the report that the wool test detected all but a trivial number. This is not the case. In the *Lancet* of June 22nd, 1912, p. 1684, I have given an example of a very dangerous case of colour blindness which I examined for the first time in the presence of Professor F. T. Trouton and Professor A. W. Porter.

Examined with the official test of the Board of Trade, the examinee picked out and matched all five test colours —green, rose, red, purple, and orange-yellow—easily and correctly; he did not touch a confusion colour. Had I examined him by this test alone I should have passed him and had no suspicion that he was colour blind. Examined with the largest aperture of my lantern, measuring $\frac{7}{8}$ in. in diameter, at a distance of 20 ft., he called red A nothing and green; yellow, red; red B, white; neutral 1, green; and green, white and red. This test was the shortest of any I made, and lasted less than a minute, as I only asked the subject of it, at the most, to name fifteen lights.

It is evident that the committee was under the impression that very few cases could get through the wool test, and these only slight ones. The committee referred to border-line cases, "in which considerable difficulty has been experienced in determining whether the defects in the vision of the candidate will or will not interfere with his efficient watch keeping. These border-line cases represent much less than 1 per cent. of the candidates examined."

The following, extracted from the report, shows that the committee even suggested the possibility of dispensing with the lantern test altogether and going back to the wool test.

> We are not prepared to recommend that the lantern test should replace the wool test altogether. The two methods cannot be considered as testing precisely the same thing, but each is to some extent supplementary to the other. We recommend therefore that both the lantern and the wool test (as modified in accordance with our previous recommendation) should be used, at any rate for the present, in examining all candidates. A candidate who makes mistakes in either test should not be allowed to pass without a further examination unless the Board of Trade, on the report of the examiners, decide that such a further examination is unnecessary.
>
> When the two methods have been in use for a certain number of years—long enough to afford reliable statistical data —the number of cases in which candidates who have failed in one but have passed in the other should be tabulated, and the question of dispensing with one or other could then be considered.

The committee state that the wool test also possesses the great advantage that it can be carried through without the naming of a single colour either by examiner or candidate. This statement is absolutely incomprehensible to me. A sailor has to distinguish between the red, green, and white lights at sea. He has to name them mentally, and if he can do this correctly it does not matter what he can do with wools. The committee condemn a so-called practical test conducted afloat. It states such a test carried out in normal atmospheric conditions would probably fail altogether to detect candidates whose ability to distinguish between red, green, and white lights, under less favourable conditions of weather, is open to grave doubt.

I entirely disagree with this statement. When I have had a borderline case of colour blindness I have repeatedly tested him by actual lights, and in every case in which I have detected colour blindness by other methods, it was strikingly evident when tested with actual lights. A colour-blind person will, of course, see further in fine weather than when it is misty, but so will the normal sighted; the relativity still remains.

The belief in the wool test (in spite of the overwhelming majority of experts against it) is also shown by the opinions of individual members of the committee after the issue of the report. Mr. J. H. Parsons has stated in his book that the wool test is "sufficiently good," and has not even mentioned the lantern test. It is quite evident that the committee did not believe my statement that at least 50 per cent. of persons who were dangerously colour blind could pass the wool test even in its improved form.

Let us therefore compare these statements with one issued by the Board of Trade. The new tests came into operation on April 1st of this year.

> The total number of men examined in colour vision from April 1st to May 31st was 1,689, and of these 105, or 6.22 per cent., failed. Of the 105 failures, 55 failed in both the wool test and lantern test and 50 in the lantern test only. None failed in the wool test only.

The previous percentage of failures in colour vision was 0.8, which is very different from 6.22 per cent., nearly eight times the number being rejected and nearly 50 per cent. passing the improved wool test. The percentage was a little higher than 0.8 per cent. in 1912, being 2.22 per cent., but even this percentage is a little over a third of those now rejected.

It is interesting to note the results of the new tests as applied to men who had already passed the tests. The following is a statement by the Board of Trade:

> The total number of officers in possession of certificates of competency who were examined in the new tests during the period April 1st to May 31st, 1913, is 409.
>
> *Failed in Lantern Test Only.*—Six certificated officers failed in both local and special examinations; 2 failed in local examinations, but special examinations have not yet been held.
>
> *Failed in Wool Test Only.*—None.
>
> *Failed in both Lantern and Wool Tests.*—Three certificated officers failed in both local and special examinations; 1 has failed in the local examination, but has not yet been specially examined.
>
> Thus, 9 certificated officers have failed to pass the new test, and 3 having failed at local examinations are awaiting special examinations before a final decision is given.

Now, it must be noted that all these men had passed the Board of Trade test on one or more occasions previously, yet the number of rejections (nearly 3 per cent.) of certificated officers is nearly four times the percentage rejection of all cases, which for the total period since the introduction of the wool test is 0.8 per cent. It will be noticed that eight men failed in the lantern test only and passed in the wool test—that is, nearly 2 per cent.

Form Vision.

The committee has approved of the form vision test and the method employed, but has raised the standard. Whether this standard be too high or not will have to be ascertained by definite experiments based on a knowledge of the requirements.

The method employed is a very bad one. The letters are printed on canvas to which a piece of wood is attached. In the normal position this rolls up at the bottom, and has to be held down by a tag by the examiner. The objections to this kind of test are as follows:

The surface is liable to become yellow and crack, and the letters become distorted. It is very difficult to obtain a flat surface by the method used; in fact, when I was being examined, the surface was to a certain extent concave, and therefore an astigmatic effect was produced. I found I could read the letters better by tilting my glasses, so that the images formed of the test types on my retinae were astigmatic. The effect of this is that men having a defect of the eyes might read the test types better than a man without this defect. The arrangement of lighting was lateral and very defective, and as the daylight varies considerably men would not be examined in similar conditions.

The method to be adopted should be that which is employed by nearly every ophthalmic surgeon. The letters should be printed on a smooth white surface, preferably white porcelain. The letters should be the standard size—that is, the letter should subtend an angle of 5 minutes on the observer's retina, and each part of the letter should subtend an angle of 1 minute. I do not know whether the size of the letters I saw was correct; the letters, however, could be easily measured with the aid of a sextant. The illumination should be constant and free from all points of glare. It should be by diffused daylight when possible, the source of the light to be opposite the type and not placed laterally, as is the case with the Board of Trade. The lighting should be such that a normal-sighted person should be able to read all the letters at the required distances with the greatest ease.

The Lantern Test.

This lantern is an imperfect copy of my lantern (the official test of the navy), and lacks many of its essential features. It is a paraffin lantern, which shows one or two small lights simultaneously, which are reflected from a mirror. Its chief defect is that it lacks any means of regulating the luminosity of the light. Only two colours and white are used in the lantern, so that a man knows beforehand that he will only be shown these three lights. The method of having two lights is not a good one, and is one that I have carefully investigated. Change of colour due to simultaneous contrast is likely to cause the rejection of many normal-sighted persons, and those with slight and unimportant defects of colour perception. On

the other hand, in my opinion many colour-blind persons who have practised themselves in distinguishing between the three lights employed, particularly if with one of these lanterns or one of similar construction, whilst in reality very dangerous persons and liable to cause accidents at sea, will be passed.

It was thought that when the Board of Trade recognized that a lantern test was necessary it would have appointed as an adviser at least one of the large number who have had special experience of a lantern test. This was not the case; the ordinary examiners are sailors, and on appeal only those who have specially advocated the wool test and opposed the lantern test have been appointed. The extracts I have given from the report show how little the committee recognized the value and importance of the lantern test, and that they were not the right persons to construct a lantern test or to advise as to its use.

Dr. Edridge-Green concluded his remarks by moving the following resolution:

> That a recommendation be forwarded to the Council of the Association:
> That the sight tests of the Board of Trade are not satisfactory, and that an inquiry is urgently needed in the interests of the mercantile marine and the nation.

DISCUSSION.

Mr. Devereux Marshall (London) said he quite agreed with all that Dr. Edridge-Green had stated. The most unsatisfactory nature about the Board of Trade's methods was its extreme uncertainty. No one was safe. When first the lantern which had been introduced as the official test was adopted, it appeared to lack so many of the essentials that it was scarcely expected to do much, and yet its introduction had shot up the percentage of rejections from 0.8 per cent. to 6.22 per cent. This fact was remarkable, and showed how very wrong one of the results must be. He (the speaker) thought that one gave far too low a percentage of rejections and the other far too high a one, and there was no confidence to be placed in either result; but still any lantern, however inefficient, was better than no lantern. It was, indeed, a significant fact that, while many were rejected by the lantern and passed by the wools, not one person was rejected by the wools and passed by the lantern. Such facts could not but show to unprejudiced minds the extreme inefficiency of the wool test. What was wanted was a test to separate the dangerously colour blind from those who were normal, or whose defect was of such a nature that would be altogether negligible for the duties of a signalman. Many bad cases got through the wool test, and now it was very probable that among the large number rejected many were included whose colour vision, though not up to full normal, was yet quite efficient for all practical purposes. He strongly condemned not only the tests employed, but also the fact that laymen who knew nothing whatever about ophthalmic work or colour vision were the appointed examiners of the Board of Trade. In spite of Dr. Edridge-Green's enthusiasm on the subject, his statements were always made most deliberately and were never exaggerated. He begged to second the resolution proposed by Dr. Edridge-Green.

Mr. Bishop Harman supported the motion. On the matter of form vision, he said that very little observation was required to show that a test type was distorted out of all knowledge when the characters exposed were on an uneven surface. The different angles of reflection presented by such a surface made certain letters indistinguishable. He suggested that the "variable E test-type" he had shown would be particularly suitable for this work. On the point raised by the three-colour lantern test he had made some experiments with a colour-blind patient, and found that it was possible to distinguish between three effects when white was one; the patient had learnt to distinguish between them by the differences in luminosity. He was able to do this provided the illumination was fairly equal.

Mr. T. Harrison Butler (Leamington) spoke strongly in favour of the views put forward by Dr. Edridge-Green.

The President considered that the only possible way to bring pressure on the Board of Trade was for private members to ask questions in the House of Commons. He and many others had long since got tired of trying to approach the Board of Trade. No notice was taken of what was pointed out. He gave a short summary of the whole subject from his past experience.

Mr. J. Herbert Parsons (London) spoke, as a member of the departmental committee, very strongly in favour of the work done by that committee, and considered that many of the criticisms were unfair. He highly approved of the lantern and the methods used by the Board.

Mr. W. H. Brailey (Hove) pointed out some nautical inaccuracies made by the previous speaker.

On the resolution being put to the meeting it was passed with one dissentient.

DISCUSSION ON THE TREATMENT OF CHRONIC DACRYOCYSTITIS.

OPENING PAPERS.

I.—T. Harrison Butler, M.A., M.D.Oxon.

Dacryocystitis has aptly been designated the stepchild of ophthalmology, and for this reason I rejoice that the subject is to be discussed at this annual meeting, more especially as the last decade has witnessed a substantial advance in our knowledge of the best methods of treatment.

As long ago as the eighteenth century Anel invented a lacrymal probe and the syringe which in a modified form still bears his name. A little later Percival Pott used a lacrymal probe, and a syringe to irrigate the sac, but he gave up the probe because he found that the results he obtained were unsatisfactory. He says that

> The syringe, if used while the disease is recent, the sac very little dilated, and the mucus perfectly clear, will sometimes be serviceable. I have by its means injected a fluid through the sacculus into the nose, and in two or three cases the patients have got perfectly well.

In the same paper Pott anticipated Toti in attempting to make an artificial communication between the nose and the lacrymal sac. Thus in 1758 Percival Pott was treating dacryocystitis by methods which are now widely recommended as the best, and which with improved technique are those practised by many ophthalmologists to-day. But, unfortunately, as has happened in so many branches of surgery, the clear principles enunciated by Percival Pott were forgotten, and lacrymal surgery passed through a retrograde stage. Weber invented his knife for slitting up the canaliculus, an operation which practically destroys the capillary action of this fine tube, and it became the custom to force enormous probes into the nasal canal. This practice was no doubt due in some degree to the teaching of the illustrious Bowman, but it must be recollected that Bowman used the fine probes which bear his name, and cannot be held responsible for the use of the larger weapons which have caused untold suffering to countless unfortunates. In this connexion I advise you all to read a paper by Freeland Fergus, which will be found in the *Ophthalmic Review*, vol. xxviii, page 102. During recent years the introduction of Nettleship's and Lang's dilators, the perfecting of the lacrymal syringe, the development of the operation for extirpating the sac and dacryocystorhinostomy, together with the recognition of the relationship between dacryocystitis and diseases of the nose, have made the treatment of the disease much more satisfactory.

The subject falls naturally under two heads: Dacryocystitis in infants and children, and dacryocystitis in adults. I shall deal with the disease in children first.

There are three chief causes in children: Failure of the nasal duct to become patent, tuberculosis, and syphilis.

Mayou in his Jacksonian Essay (R.C.S., 1904) pointed out that the lacrymal duct at birth is filled with débris both from the sac and the canaliculi. In some cases this débris remains in the nasal duct and blocks it, and as it forms an excellent culture medium for micro-organisms an abscess

may form in the lacrymal sac. The organisms isolated by Mayou from these sacs were the gonococcus, the staphylococcus, the pneumococcus, and the Morax-Axenfeld diplobacillus. The treatment of these cases is easy and generally successful. The sac should be washed out daily with a mild antiseptic for a week or two, and if this is not successful a Bowman's or Ziegler's probe should be carefully passed once only under ether anaesthesia, and lavage continued till the passages are clear. It has been stated that simple pressure upon the sac carried out twice a day for a short time will often cure the disease. This is true, but personally I prefer lavage.

Igersheimer pointed out in a paper he read to the Ophthalmological Congress, held at Oxford in July, that congenital syphilis is a very common cause of dacryocystitis in infants and young children. I have not met these cases often, but bearing his remarks in mind, it will be well to keep this possible cause in view, and add appropriate antiluetic treatment to our local measures.

In older children tuberculosis of the lacrymal sac is a common condition. It is generally complicated by a peridacryocystitis. Such sacs should be excised early, otherwise the skin over the sac is apt to become implicated, and then successful treatment is difficult. The wound often heals badly, or rapidly breaks down again. Then the only method is to reopen it thoroughly, scrape away any granulations with a Volkmann's spoon, and pack the wound with iodoform gauze soaked in iodoform emulsion till it heals up from the bottom. This treatment has always succeeded in my hands, especially when it is aided by injections of tuberculin. In tuberculous cases the sac is often filled with a white pultaceous cheesy substance.

In adults the chief causes of dacryocystitis are: Endonasal disease, tuberculosis, trachoma, and the formation of a diverticulum which becomes closed off from the main sac. Tumour of the sac is very rare. I only know of two cases. One is recorded in Weeks's textbook, and the other occurred in my own practice. Both were sarcomata.

Endonasal Causes.—Kuhnt and Brunzlow state that in nearly every case endonasal disease is present and almost always in the form of chronic inflammation of the ethmoid cells. Brunzlow generally found the cells in a soft mushy condition. Definite ethmoidal suppuration is uncommon, and to this must be ascribed the fact that when we refer these cases to a rhinologist we almost invariably receive a report that the nose is normal. In some cases the inferior turbinal is distorted and pressed against the nasal wall or is atrophic, in others there is a general atrophic rhinitis. I think we must accept the fact that in the vast majority of our cases the disease depends upon chronic inflammation in the ethmoid cells and of the lining of the antrum of Highmore. How far this ought to influence our treatment is another matter which I shall discuss later.

Tuberculosis.—This is not uncommon in adults, and the remarks I have made above regarding the disease in children apply with equal force to adults.

Trachoma.—In the East dacryo-cystitis is exceedingly common, and it has been shown that the changes characteristic of trachoma are present in the sac. As the result of four years' experience in Jerusalem I cannot sufficiently emphasize the advice to excise the sac at once. These sacs are exceedingly friable and lavage is *absolutely fatal*, the passage of probes is *disastrous*. In a large percentage of cases the most gentle lavage bursts the sac and the septic fluid enters the surrounding tissues. If protargol be injected it often spreads over a wide area and produces indelible staining of the skin. In one of my cases an orbital abscess formed, followed by complete optic atrophy. The same result followed the use of a probe in the hands of a colleague.

Diverticulum of the Sac.—A firm fluctuating tumour is often noted in the site of the lacrymal sac. The fluid it contains cannot be expressed, but fluid injected into the canaliculi freely enters the nose. In other cases the fluid can be squeezed into the nose. When these sacs are dissected out a diverticulum is found. I showed one to the Midland Ophthalmological Society at the Nottingham meeting last year. The only possible treatment is excision of the sac with its diverticulum. There is generally no pericystitis and the operation is therefore easy. The diverticulum may contain a yellowish fluid or a white cheesy mass.

Treatment.

In all cases the nose should be examined both before and after the mucous membrane has been contracted with cocaine and adrenalin. Any obvious distortion of the inferior turbinal should be met by inferior turbinectomy. If there be a definite suppurative ethmoiditis or an empyema of the antrum of Highmore these conditions must be treated. Generally the ophthalmologist will refer these cases to an expert rhinologist, but many are quite competent to carry out the necessary operations unaided. If there only be present the chronic ethmoiditis described by Brunzlow I would "let sleeping dogs lie." The endonasal treatment is severe, very painful, and probably unsatisfactory. The result may be to light up a chronic suppurative process. It is also quite unnecessary. These patients do not complain of their chronic ethmoiditis, and it has no symptoms. The lacrymal trouble can be cured by simple measures.

Lavage.—In the absence of pus, if there be only a mucoid discharge, patient lavage will, as Percival Pott pointed out, often end in complete cure, but great patience is necessary both on the part of the patient and the surgeon. It is generally unnecessary to dilate the canaliculus more than once, if the small cannula which Messrs. Weiss have made for me be used. The ordinary lacrymal pipe is far too large. The sac must be well washed out *daily* for several weeks, and occasionally for several months. If pus be present lavage generally fails. I have a case now in which the fluid passes freely into the nose, and yet patient lavage has failed to check the secretion of pus, and I shall have to excise the sac.

Probes.—The question as to whether probes should be used is still a vexed one. Römer states that only 5 per cent. of the cases are cured by their use, and in my opinion these cases would be cured by lavage. The obstruction is generally due to swelling of the mucous membrane and to venous congestion, and it is very difficult to see how a probe can do otherwise than accentuate these conditions. If real fibrous or bony stricture exist there is probably serious endonasal disease, which should be met by endonasal treatment. Probing and the use of Stilling's knife will but rarely benefit these strictures. If a probe be used it should be a small one passed with the greatest care. I know of many patients who have been probed for years and have undergone intense agony, borne with exemplary patience, with the final result that eventually I have had to excise the sac. Some of them, too, have developed hypopyon ulcer.

Styles.—In spite of the warm advocacy of no less an authority than Mr. Priestley Smith, I can only regard the use of styles as unsurgical. It is true that in many cases a funnel-shaped passage is produced which is patent to the nose; but when the canaliculus has been slit up it rarely fulfils its function, and it is practically always full of micro-organisms only waiting for a corneal abrasion to produce a hypopyon ulcer.

Excision of the Sac.—In most cases of *suppurative* dacryocystitis the only way to cure the disease is to excise the diseased sac. If the patient be employed as a mechanic or in any trade in which he is liable to corneal abrasions, it is essential to do it at once. In one or two of my cases the practical loss of useful vision from a hypopyon ulcer has made me regret that I have temporized with lavage. Again, few working men can afford the time spent in lavage or probing. It is far better to excise at once and cure the case. Under favourable conditions, however, I try to postpone excision and try lavage, but practically always the end is excision.

Operation.—I have not time here to describe the operation of excision of the sac, but I would say that it may be an exceedingly difficult procedure, taxing the dexterity and anatomical knowledge of the surgeon to the uttermost. It is essential to remove the sac, the whole sac, and nothing but the sac. If a trace of diseased mucous membrane be left behind, or if a clumsy operation be done leading to the formation of contracting fibrous tissue, troublesome epiphora may result. A clean, well-executed operation does not cause epiphora. Local anaesthesia with cocaine or a similar drug and adrenalin makes the procedures easier, and if a correct technique be adopted it gives a painless operation. A full description of the

operation I adopt will be found in Mr. Devereux Marshall's small *Textbook of Ophthalmology*.

Toti's operation of dacryocystorhinostomy would seem to be an ideal method of treating the disease, were it not so difficult and complicated. The main principles of the procedure are shortly these: Toti exposes the sac, turns it back, and cuts a window in its inner wall. He now chisels out a piece of the adjacent bony wall of the nose and expcses the nasal mucosa. The nose is packed with gauze after removal of the inferior turbinate bone, if necessary, and, in some cases, of some of the ethmoidal cells. A window is cut in the nasal mucosa the same size as that in the lacrymal sac, and the edges of the two fenestrae are united by sutures. Toti claims that after this operation the natural drainage of the conjunctival sac is restored. Not only can fluid be freely syringed into the nose, but fluorescin instilled into the conjunctival sac appears in the nose. Although I practised for some years as a rhinologist I have not yet ventured to try this method. My experience of lacrymal sac extirpation, extending to some 50 cases, has given me a great respect for the difficulty of the operation, and I think that Toti's method would be always exceedingly difficult and tedious and in most cases quite impossible. The operation would be of considerable magnitude, involving much endonasal manipulation. It should only be attempted by those ophthalmologists who have a perfect mastery of the technique of nasal operations.

When a fistula has already formed, extirpation of the sac is the only method likely to cure the case, even when the original inflammation has quite disappeared.

Lacrymal Phlegmon.—When there is a definite abscess round the sac I think it is best to make a large incision down to the bone and pack the wound with iodoform gauze. When the inflammation has quite ceased the sac should be dissected out—an operation of very great difficulty. It is essential in all these dissections to avoid injury to Horner's muscle. If this be cut away the lower lid will droop, and this defect is hard to remedy.

It was suggested to me that in opening this discussion I should adopt a judicial attitude, but I have felt compelled to take up a very decided position against the use of the probe—a method found to be ineffective even in the days of Percival Pott. In doing so I think I shall encourage a better discussion than if I had merely mentioned the various methods without prejudice. Extirpation of the sac has in my hands led to satisfactory results, and none of my more recent cases have complained of any marked epiphora. Before I had thoroughly mastered the technique, and when I used a general anaesthetic, I had one or two cases of troublesome epiphora.

II.—Lieutenant-Colonel R. H. Elliot, I.M.S., M.D.

This paper deals with 900 consecutive cases of extirpation of the lacrymal sac performed during the last nine years in Madras. Though the larger number of these operations have been done by myself, quite a considerable number have been contributed by the twenty-four surgeons who have learnt our technique in the Government Ophthalmic Hospital. I lay special stress upon this, because so much has been written of the difficulties of the operation. In my opinion, these difficulties have been much exaggerated. I have not yet met with a single surgeon who was unable to acquire the necessary skill. Two further pieces of evidence will, I think, prove convincing—first, that in 78 per cent. of these 900 cases the sac was removed absolutely entire; and, secondly, that only 5, or 0.55 per cent., of them have returned for a second operation. It is to be borne in mind that 67 cases, or 7.4 per cent., were operated on in an acute or subacute stage, in which the difficulties of clean total extirpation are very greatly increased. Moreover, there is good reason to believe that in 3 at least of the above 5 cases, the recurrence of the trouble was due to a secondary distension of the canaliculi; these channels are not interfered with in the Madras technique. I think the small percentage of this complication justifies such an abstention.

Indications for Extirpation of the Sac.—The conditions of Indian practice are peculiar. Strong elements in the case are (*a*) the long distances travelled by the patients, (*b*) a poverty which makes protracted treatment impossible, and (*c*) a want of confidence in Western methods, which will not survive the strain of a prolonged and painful method of treatment. The conservative methods of treatment are therefore but seldom indicated. The conditions calling for their exhibition are (1) the absence of inflammatory or marked structural changes in the passages, and (2) on the part of the subject, the necessary courage, confidence, and perseverance, combined with the means and leisure to give the time required by the surgeon. In all other cases of dacryocystitis or lacrymal obstruction extirpation is indicated. The following conditions, which are very common in India, call urgently, in my opinion, for the radical operation: (1) Marked dilatation of the sac; (2) purulence of the sac contents; (3) evidence of past phlegmonous inflammation, or of past or present septic ulceration of that cornea, or of the cornea on the opposite side. In Madras we remove the sac in all cases of obstructive retention prior to performing any intraocular operation. If there is obstruction without retention we are content to temporarily block the canaliculi by means of two silk sutures, one passed through each lid in such a way as to include the tiny channel. These stitches can be removed as soon as the ocular wound is healed. Apart from the simplicity of this procedure, it has the great advantage of avoiding one of the most difficult classes of cases for extirpation—namely, those in which the sac is shrunken and very adherent to surrounding structures.

Anaesthesia.—In Madras we have relied on chloroform in preference to local anaesthesia. We do not deny that the operation can be painlessly, or nearly painlessly, performed in the majority of cases under a local anaesthetic, but we consider that the risks of chloroform administration in competent hands are very small in operations of such short duration as these; whilst the advantages to both patient and surgeon of the complete unconsciousness of the former are very great indeed. In this connexion I may mention that the average time taken over the removal of the sac in Madras is about seven or eight minutes. Many of my more skilful pupils perform the operation on easy cases in considerably less time than this, whilst I have once removed a sac entire in three and a half minutes, and a number of occasions in from four to five minutes. It may throw some light on this when I say that we have often run into double figures in the number of sacs removed on a single morning.

Steps of the Operation.—The patient's head is turned towards the light and his feet away from it, and the table is placed obliquely, so that the light illuminates the side of the face on which we are operating. The chief assistant stands on the patient's left, with the instrument table between him and the operator. On the latter's right are the assistant who steadies the head, and the anaesthetist.

The guide throughout the operation is the anterior lip or crest of the lacrymal fossa. This fact must never be lost sight of for a moment at any stage of the procedure. It is cardinal. The internal palpebral ligament is first defined by pulling the lid outwards. Despite what others have said, I hold that this ligament should never be divided, as I have seen deformity follow its division; the mutilation is also quite unnecessary. Cut boldly down on the anterior lip of the fossa, following its course with a crescentic incision, which runs first downwards and later downwards and outwards. Our average length of incision is 20 mm. Then insert a Müller's retractor, define the fascia which covers in the fossa, and divide this throughout the length of the skin incision, taking great care to cut this membrane as close to the crest as possible.

This is a very important point, as otherwise a fringe or apron of this fascia is left, which obstructs the view of the sac later on. Messrs. Arnold and Sons have made for me a small sharp elevator, which greatly facilitates this step of the operation. With the same instrument the sac is separated from its bony bed, internally and posteriorly; if not adherent, it may also be cleared with the elevator on the outer side as well, up to the point of entrance of the canalculi into it. The dome of the sac is next seized with a pair of conjunctival forceps and drawn firmly downwards, whilst a pair of fine blunt pointed scissors, curved on the flat, is used to free it from its upper attachments, working under the palpebral ligament for the purpose. The scissor points next divide the canaliculi and follow the sac down into the nasal duct. This duct is divided as low as possible, the sac being firmly pulled up for this

purpose. As large a probe as possible (Nos. 9 to 12 Theobald) is then thrust down the duct as far as it will go and followed by a red-hot, spindle-shaped cautery, thus ensuring the destruction of the mucous membrane. The cavity is now dried and examined, and the removed sac is carefully examined under water to ascertain whether any part has been left behind. Such left portions are then dissected out carefully, and, if necessary, a ball-shaped cautery is freely used over any doubtful spot. The dome of the wound (behind the ligament) is the region in which adherent mucous membrane is most apt to be overlooked; it is also the area in which inflammatory adhesions are most common and most firm. On inspection of a cavity from which the sac has been totally removed the clean appearance is characteristic: it suggests the appearance of the interior of the shell of a nut from which the kernel has been removed. It is a good rule that if in doubt one may be sure the cavity is not really clear. The wound is next flushed out with a 1 in 3,000 solution of biniodide of mercury and closed with three light silk sutures. An aseptic pad and bandage are then applied, the opposite eye being left free. On the seventh day the stitches are removed and the eye is released. In the last 200 consecutive cases failure of primary union has occurred in less than 2 per cent., despite the fact that acute and subacute cases are included with the chronic.

Difficulties met with during the Operation.

1. *Haemorrhage.*—This is a most troublesome complication, as it obscures the details of the operation; it can, in most cases, be eliminated by the injection of adrenalin solution (eight minims of a 1 in 4,000 solution) around the sac and into the skin covering it. If the incision be made too far in—that is, too far away from the canthus—haemorrhage is likely to occur from the terminal branches of the facial artery and of the angular vein. The vein is much more likely of the two to be divided. In either case the bleeding is easily arrested by touching the point with the cautery, which is always at hand during the operation. If the incision is carried close to the canthus there is no need to damage these vessels at all. Sometimes, and especially in acute or subacute cases, we meet with troublesome oozing. This can usually be controlled by firm pressure, exerted by means of sterilized wool swabs mounted on sticks; wetting these with 1 in 1,000 adrenalin solution is often helpful. A beginner must have a clear view, but I always teach an expert to ignore the bleeding if it proves difficult to stop, and to finish the operation by feel alone. This is quite easily done if the operator frequently establishes his bearings by feeling for the guiding anterior crest of the fossa.

Another source of embarrassing bleeding is ragged operating. The space we are working in is small, and every cut should be clean and purposeful. Niggling scratchy cuts make a confused wound, and are a fertile source of haemorrhage.

Lastly, bleeding may take place after the sac has been removed, either from the nasal duct, or due to a false passage having been made into the vascular cells around. The former can be stopped by the use of the cautery, the canal being plugged to the last moment before its introduction. Both, however, may be ignored, for once the sac is out, the amount of bleeding that occurs is of no real consequence, and is sufficiently dealt with by closing the wound alone. I have never seen the least harm come from it.

2. *Difficulty in Finding the Sac.*—When the sac is not dilated or distended, it is usually found to be covered by a strong fascia, which roofs in the fossa, and which appears to be a backward reflection from the tendo palpebrarum. This fascia is often dense, and when associated with a high nose-bridge and a deep-set orbit, it may lie nearly parallel to the median sagittal plane. On the contrary, a flattened type of face throws this fascial plane more into the plane of the face, thus rendering the wound shallower and the sac more accessible. The former condition obviously has the opposite effect. Both the depth of the wound and the plane of the sac tend to embarrass the operator, who may easily mistake the fascia for bone, slide over it, and burrow out into the orbit. The usual sequel of this by no means uncommon error is that the operator takes a lobule of fat for the sac, and only discovers his mistake when he floats it in water for examination. I have seen this accident happen on a number of occasions to quite good operators, before they had been warned of its possibility. It need never happen if, after a first clean skin incision, the wound is held wide open, the nasal margin of the groove well defined, and the dense fascia cleanly divided as close to the crest as possible. The sac is at once seen lying within its sheath of bone and fascia, and the sequel is then simple.

3. *Removal of Shrunken Sacs.*—Shrivelled, contracted sacs are the hardest to remove. In the Madras clinic I always reserve such for an operator till after he has learnt to quickly and neatly remove those which can be easily defined. The lacrymal fossa is opened in the usual way, and the contracted mass is excised freely, the operator erring on the side of removing too much rather than too little, especially on the outer side. One works more by feel than by sight, and keeps before one the dictum that, if in doubt, the whole sac has probably not been removed. I look on paraffin injection of the sac as tedious and unnecessary.

4. *Cases Complicated by Phlegmonous Inflammation.*—In Madras, if phlegmonous inflammation be complicated in a case of chronic dacryocystitis, we freely incise the lacrymal abscess, curette the cavity, and sponge out with a 1 per cent. solution of mercury perchloride. A month later we remove the sac. In so doing, and especially if a chronic fistula is present, we expect to meet with difficulty. We cut boldly down on the crest (our unfailing guide), open the sac freely, separate it by means of the elevator from its bony bed, seize it in the grip of a pair of fixation forceps, and freely excise it with a mass of surrounding tissue, keeping, however, as close to the sac as we can. The cautery is then used over any doubtful areas, to ensure that no diseased mucous membrane is left behind. The nasal duct is freely cauterized in such cases.

5. *The Presence of Deep Ulceration of the Cornea.*—As a complication of the case this makes it necessary to exercise great care to avoid any pressure on the eyeball during the operation. I have more than once seen the globe ruptured owing to a surgeon forgetting this rule.

The Results of the Operation.

1. The patient is protected from the two great dangers which always threaten the subject of a lacrymal obstruction. I refer to (*a*) septic ulceration of the cornea (usually pneumococcal); and (*b*) phlegmonous inflammation of the face (streptococcal in nature). Out of our 900 cases there are only two records of the destruction of the eye proceeding in spite of the extirpation—that is, 0.28 per cent.

2. The patient is, in the majority of cases, rendered much more comfortable. The removal of a source of constant irritation by the extirpation of the sac rids the whole lacrymal system of the previously existing state of inflammatory excitation. Our knowledge of the common nervous supply of the lacrymal gland, of the tear passages, and of the cornea and conjunctiva would lead us to expect such a result on physiological grounds. Clinical experience shows the reasoning to be sound, since the operation is practically invariably followed by an immediate diminution of the lacrymal secretion. In a large number of instances this happy result appears to be permanent. We have endeavoured to follow up the after-course of our cases, and have succeeded in doing so in 210 out of the last 700, or in 30 per cent. Dealing with these 210, 80 per cent. of them have been subsequently heard of doing well and pleased with the result of the operation, whilst 19 per cent. stated that the watering and other symptoms had not been relieved. It is significant, however, that though they were all asked to return to hospital, not one of them (40 in number) did so. The remaining 1 per cent. is accounted for by two cases in which extirpation failed to arrest the progress of a septic ulceration, with the result that the eye was lost in each case.

DISCUSSION.

Mr. C. HIGGENS (London) said he had come purposely to bring Dr. Toti's operation to the notice of the meeting, but the wind had been taken out of his sails by Mr. Harrison Butler, who appeared to know all about it. The speaker believed he had introduced the operation into this country. He made some remarks at the meeting of the

British Medical Association three years ago to the effect that there had been no improvement in the treatment of sac disease for forty years, which seemed to nettle Dr. Toti, for he sent him a report of his operation in two languages—French and Italian—which with a good deal of assistance Mr. Higgens was able to understand. He had performed the operation twice only, and assisted another surgeon to do one—not a very wide experience. The operation was troublesome, and took a long time, but the results were very satisfactory, and he hoped other surgeons would give it a trial. He wound up by saying that as the result of a long experience he had formed two very decided opinions—one, never slit a canaliculus if you can help it; the other, if you possess any probes or styles, put them away where you cannot find them.

Dr. John O. McReynolds (Texas, U.S.A.) said he felt that the Section would be interested not so much in his individual experience as in the prevailing practice in America. He would be perfectly safe in saying that, especially during the last decade, there had been a gradual but persistent and increasing tendency towards extirpation of the sac in all chronic suppurative cases. It was true, however, particularly in private practice, that good results were achieved in mild cases by judicious dilatation and lavage, and there would probably continue to exist sound and sufficient reasons for such procedure. The method of extirpation most frequently employed in America was essentially that which had been advocated and published by Müller of Vienna, and the operation was usually performed with the aid of local anaesthesia.

Mr. S. H. Browning (London) said he would like to suggest that vaccine treatment should be more frequently used, as the results were sufficiently satisfactory to justify this method of treatment. The commonest organisms present were the pneumococcus, streptococcus, staphylococci—chiefly *Staphylococcus aureus*—pneumo-bacillus, and also the influenza bacillus and various streptothrix infections. Of these, the most satisfactory as regards vaccine treatment were the streptococcal and staphylococcal. Then again streptothrix infections were probably much more common than was generally supposed; the speaker had during the last few years had 8 cases. The treatment of them was generally very successful, as expression of the concretion brought about a fairly rapid cure. He had never treated a streptothrix infection with a vaccine, but it had been reported to have been so treated with success. The pneumococcal infection did not react so well to vaccine treatment. The speaker here drew attention to influenza as a cause of chronic dacryocystitis, as lately he had had several cases due to this organism. It was important from the general medical point of view as well as to the ophthalmologist, as in several of these cases the patient had been found to be an influenza carrier. He had only had the opportunity of treating two of these cases with vaccines; one did well and the other was quite unaffected.

Dr. E. C. Ellett (Memphis, U.S.A.) said that, speaking from a very modest experience, it seemed to him that cases of simple epiphora had been relieved by Bowman's operation after the failure of other methods, without subsequent bad effect of any sort. A modified form of probing, under the name of "rapid dilatation," was advocated by Dr. Ziegler of Philadelphia, and consisted in the passage of a large conical probe. The speaker had had some favourable results from this method, as well as from the large Theobald probes. In cases of inflamed, suppurating, and dilated sacs, excision had given him the most satisfactory results. Unless cleanly done, there was sometimes a regeneration of the sac necessitating subsequent removal. He had seen one case in which the sac was presumably removed three times.

Mr. Maurice H. Whiting (Ealing) commented upon the dangers of operations on apparently localized swellings above the internal tarsal ligament. He mentioned two cases in which meningitis had followed interference. The operation was not always easy, and sometimes it had to be repeated.

Mr. W. B. Inglis Pollock (Glasgow) said that he was very gratified to receive the support of Dr. McReynolds and Professor Weeks to a statement he had made at the Birmingham meeting two years ago that there was a difference in the treatment of private and hospital patients. In the former excision was seldom required, as they took more trouble about early treatment than the latter.

Mr. Bishop Harman (London) said that he early learnt that there was a difference in the necessary treatment of these cases according as the patient was exposed to industrial risks or not. There was more in it than the promptness with which better class patients came for treatment. The poor would not be bothered with long-continued treatment, but would rather have the matter dealt with summarily, and that was the safer for them. The acute abscess should, he thought, be treated as any other abscess, and well scraped out; he had frequently succeeded in destroying once and for all the diseased sac by one scraping. The bony landmark for the excision operation was truly never to be missed, but he was also accustomed to insert a bent probe into the sac through the lower canaliculus. This made an even better guide. He also advocated the routine destruction of the canaliculi after the excision was completed, otherwise these structures remained like test tubes, full of microbes, and were the cause of the continuing epiphora. He commented on a manner of operation devised by the rhinologists who laid open the duct with the nose.

Mr. C. Wray (Croydon) said that the lacrymal crest was frequently difficult to trace, and therefore it was wise to pass a probe or strabismus hook via the lower canaliculus into the sac as a guide. He considered the operation should be done under a local anaesthetic, as some years ago a patient succumbed to the chloroform whilst adrenalin was being used. Specula, in his opinion, were unnecessary, and he had followed with every satisfaction the technique of Mr. Harrison Butler. Excision of the sac was perhaps too frequently performed; efforts should be in the direction of conservatism, and it might be wise to incise the anterior surface of the sac, on the point of a probe passed into the sac. A gold globe-headed style could then be passed through the incision, and could be removed at pleasure by the patient every day for the purposes of syringing. He always referred his sac cases to a rhinologist, but an efficient examination of the lower meatus, and the opening of the duct involved removal of the anterior end of the inferior turbinate bone; thus it should be distinctly understood that excision of the sac should not be undertaken lightly, as few patients would submit willingly to this somewhat formidable operation.

Mr. Devereux Marshall (London) thought that streptothrix in the canaliculus was far more common than was usually supposed. Clinically it could be distinctly recognized on account of the hard, full feeling of the canaliculus, from which purulent matter and solid particles could be expressed, while the fungus was easily seen microscopically. For the treatment of this condition it was never necessary to slit the canaliculus, for most of it could be scraped out, and the injection of mercury perchloride or some other efficient antiseptic would complete the cure.

The President summed up strongly in favour of the use of probes and styles, and condemned the excision of the sac. If anything required excising, he thought it was the lacrymal gland and not the sac.

SUPERCORNEAL SUTURES AND AN OPERATION FOR CONICAL CORNEA.

By Ernest E. Maddox, M.D., F.R.C.S.Edin.,

Ophthalmic Surgeon, Royal Victoria Hospital, Bournemouth; Lecturer in Ophthalmology, University of Oxford.

By supercorneal sutures I mean such as are designedly laid over the face of the cornea, either nakedly or with the intervention of a small piece of sterile waxed membrane. Surgical teaching has generally forbidden the contact of a suture with the corneal epithelium,

and consequently an immense amount of ingenuity has been expended, notably by Kuhnt, on so making flaps as to strictly observe this rule, regardless of expense in laying bare very large areas of sclera. Specimens of Kuhnt's flap are shown in Figs. 1, 2, and 3. It was

Fig. 1.

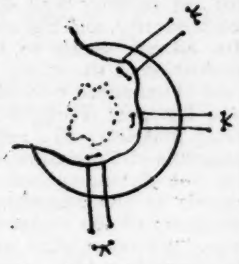


Fig. 1A.

with some misgiving, therefore, the first time that I infringed what seemed so wholesome a rule by laying sutures over the cornea on an occasion when to do so seemed the only alternative for excision in the case of a badly damaged eye. To my surprise, the cornea tolerated them perfectly, and I have learnt since that

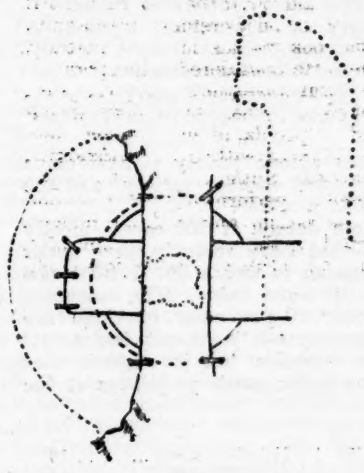


Fig. 2.

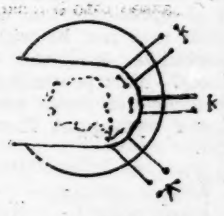


Fig. 2A.

they need not be feared, provided that the following simple rules be adhered to: (1) To let no knot come near the cornea; (2) no threads cross each other; and (3) none be used too thin or too tight. Should the traction be great the threads should be multiplied to lessen it. Moreover, Nature, by covering such threads with protective

Fig. 3.

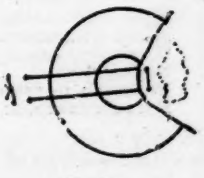


Fig. 3A.

mucus, teaches us to anoint or wax them ourselves instead, and thus anticipate her.

So far, I have found three uses for sutures of this kind: (1) To cover traumatic corneal lesions with conjunctiva; (2) as safeguards for cataract operations; and (3) for conical cornea. They should not be used when the sac is known to contain dangerous micro-organisms, or when the cornea is evidently devitalized. In the latter case I would suggest (when neither Kuhnt's nor Snellen's flaps are available) that a flap be cut as for supercorneal sutures, and then drawn completely over the cornea, and stitched beyond the opposite limbus, the contact of sutures with the cornea thus vanishing.

Figs. 1A, 2A, and 3A exhibit the same lesions as those seen covered by Kuhnt's flaps in Figs. 1, 2, and 3 respectively, and show how they can be covered, if they are traumatic ulcers, without leaving sclera bare, should the aid of supercorneal sutures be considered permissible in each case. For non-traumatic ulcers they are not so, since the cornea is of low resisting power.

As regards wounds of the cornea, some discrimination is necessary, different flaps being suitable for different cases. Those needing supercorneal sutures are, I would suggest, indicated for wounds which lie *parallel* to the limbus, as illustrated in Fig. 4, since their traction draws the lips of

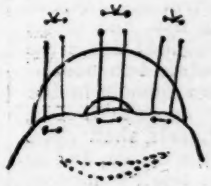


Fig. 4.

Fig. 5.

the wound together. On the contrary, I should still prefer one of Snellen's side-traction flaps for *radial* wounds, as illustrated in Fig. 5.

Fig. 6 shows how a very complicated wound of the cornea and sclera may be covered by a flap held in place by one continuous suture, which also supports its base at *a a*, so as to lessen the traction on its margins. It was a case something like this that led me to use supercorneal sutures. I do not now, however, favour one long suture, since the strength of a chain is no stronger than its weakest link, and the first loop that cuts through loosens all the rest.

Fig. 6.

The second use of these sutures as safeguards for cataract extraction has already been described in the *Ophthalmic Review*, so I need not do so again. They will be found invaluable whenever an insane or obstreperous patient has to be relieved of his cataract, or when vitreous is half expected or has been lost in the other eye. I cannot help thinking, too, they might prove of service to those who practise the extraction of the lens in its capsule, since by drawing the suture tight after extraction of the lens, the toilet could be completed much more thoroughly than is done at present, even should a little vitreous have escaped.

We now come to the third use I have made of these flaps, namely, as an aid in operating for *conical cornea*. As I have so far only done this operation on four eyes, and two of them so recently as not yet to know their final visual acuteness, it would be premature to attempt anything like a clinical report. I will therefore content myself with describing the principle and details of the operation.

Its principle is this: After the excision of a bilanceolate piece of the cone, as already done by Bader, Higgens, Stanford Morton, and others, a flap, previously shaped and threaded, is immediately drawn over the cornea, so that its tension may act at right angles to the gap, thus not only drawing its lips together mechanically, but closing the door into the anterior chamber, by its own aseptic and healing under-surface. Moreover, the equal pressure of

the flap on the whole cornea, during the healing process, tends to restore its rotundity. This pressure is much more uniform and constant than any obtainable by tight bandaging, since the cornea can partly escape from the latter by turning upwards under the brow.

Some details in cutting the flap are of importance. After selecting that part of the limbus which lies nearest the cone, or preferably a little nearer the foot of the cornea, a radial fold of conjunctiva is taken up very softly in forceps, transfixed with a narrow Graefe knife, and cut upwards towards the limbus, so as to include in this apex of the flap some of the resistant episcleral tissue which surrounds the cornea. Before proceeding further, both needles of a single suture are passed through this apex of the flap, from without inwards, and not too near its edge. Were they to be passed in the reverse direction, from within outwards, the transverse portion of the thread would lie against the raw surface of the flap, and might eventually come to lodge in the corneal wound; hence the importance of this little point. The same two needles should now be made to pass through two tunnels in the conjunctiva beyond the diametrically opposite limbus, taking considerable care that the two threads shall come to lie on opposite sides of the centre of the cornea, and be equidistant from it when they are drawn tight, to prevent the flap from slipping sideways down one side or other of the cone. The bights of these two threads are now drawn loose and laid out of the way. Then, and not till then, should the main body of the conjunctival flap be disengaged from the sclera, till, when gently drawn forward with smooth forceps, it proves able to cover the cornea sufficiently or even wholly.

The ellipse is next cut, with knife, scissors, or both, the flap drawn over it, and the main suture tied. Such other similar supercorneal sutures are put in as may seem best for retaining the flap and broadening it out. In practice I sometimes find no cornea at all remains uncovered after this is done.

For two or three days the eye should be untouched and the other eye kept closed. After that a gentle daily lotioning by the surgeon himself, but safely by no other hand, is indicated. After about a week some or all of the stitches are cut through, but the flap by that time is no longer needed. The eye thereafter should be firmly but evenly compressed with lamb's-wool, under a Japanese crêpe bandage, for two or three weeks.

In my first case, published in the *Ophthalmic Review*, a corneal suture was also employed to unite the lips of the corneal gap, but in the last two cases I discarded this as unnecessary. The vision reported to me in this first case, eight months afterwards, was $\frac{6}{9}$ with +1 D. cyl.

In cutting the ellipse I have one little improvement to offer. It is to transfix the apex of the cone with a sharp lens hook before making the incision. It possesses the double advantage of steadying the cornea and of furnishing a landmark for the cutting. In two cases I snipped off the ellipse at one stroke with sharp curved scissors. This answered quite well and is extremely easy, though I think on the whole I rather prefer the use of a knife.

The conclusion arrived at is this, that though supercorneal sutures are not ideal, they are marvellously well borne; and though flaps made by their aid should not lightly replace those of the older kinds if it can be helped, yet they should have a distinct field of usefulness peculiar to themselves.

DISCUSSION.

Mr. Devereux Marshall (London) asked if the conjunctiva were drawn over the cornea, and, if it were, did it not produce a symblepharon?

Dr. Maddox said, in reply, that it always fell back again when the sutures were removed.

Dr. John Hern (Darlington) said he had learnt from Dr. Maddox some years ago the value of the conjunctival flap in cases of injury to the cornea (with the stitches stretched right across the cornea for days), and he had tried it in many cases with excellent results. This operation had not suggested itself to him, but he hoped to use it on the first available occasion.

NYSTAGMUS:

A REVIEW OF ONE HUNDRED CASES, CHIEFLY ORDINARY OR NON-MINERS' NYSTAGMUS.

By James Alexander Wilson, M.D.,
Assistant Surgeon, Ophthalmic Institution, Glasgow.

Miners' nystagmus is a subject on which much valuable work has recently been done, yet its etiology remains in some obscurity, and the subject is still one for discussion.

Its advent seems to have been associated with the introduction of the safety lamp and consequent reduction of the illumination by which the miner labours. Simeon Snell, however, thought it was caused by strain of the orbital muscles. He argued quite plausibly from the nystagmus of the coal-miner looking upwards at his work, from the nystagmus of the pit bottom man looking upwards at the ascending and descending tubs, to the nystagmus of the compositor looking upwards at manuscript. All these, thus arranged, seemed to fit together and strengthen his conviction that strain of the orbital muscles was the cause of nystagmus.

Dr. T. L. Llewellyn states that "the collier need not and does not direct his vision upwards."[1]

Tatham Thompson,[2] in 1891, wrote:

> Neiden, Priestley Smith, and others have maintained that insufficient illumination and consequent imperfect stimulation of the retina, and therefore of the co-ordinating centres, is the principal factor.

Thompson supported this theory, and also thought it was applicable to ordinary or non-miners' nystagmus. The Ophthalmological Congress, held at Oxford in July, 1912, unanimously passed the following resolution:[3]

> That in the opinion of the Congress the character of the illumination is the chief factor in the production of miners' nystagmus.

The facts or associations of one variety of nystagmus should help us to understand another variety, and the subject should be studied as a whole.

The following are some details of 100 cases—mostly non-miners' nystagmus—that have recently come under my observation. The number is small, but I hope the details may not be without some value. The cases are consecutive ones, and only 10 per cent. of them are miners. This percentage may not represent the actual prevalence of these two varieties, but it suggests that miners' nystagmus forms but a small proportion of the total.

Age:

5 years and under ...	10	21 to 30 years ...	19
6 to 10 years ...	19	31 to 40 years ...	11
11 to 20 years ...	35	Over 40 years ...	6

Sex: Males, 52; females, 48.

Vision of 200 eyes—that is, taking the eyes singly:

$\frac{6}{6}$ ...	2	$\frac{6}{24}$ ...	18
$\frac{6}{9}$ ...	2	$\frac{6}{36}$ ...	35
$\frac{6}{12}$ ...	17	$\frac{6}{60}$ ...	21
$\frac{6}{18}$ ...	12	Less than $\frac{6}{60}$ ...	75
Young children ...	18		

Excluding the young children, 89 per cent. of the cases have bad vision—that is, $\frac{6}{18}$ or worse.

Refraction—200 eyes:

Myopia and myopic astigmatism ...	81
Mixed astigmatism ...	23
Hypermetropia and hypermetropic astigmatism	65
Emmetropia ...	2
Unknown, or estimation impossible ...	23
Eyes shrunken, or wanting ...	6

In only a few cases is the ametropia small in amount. More than one half of these eyes have myopic refraction, and 10 cases are members of families in which there exists a strong hereditary tendency to myopia. There are 4 albinos in the series.

Cases with corneal opacities ...	21
,, ordinary cataract ...	2
,, anterior capsular cataract ...	4
,, optic atrophy ...	4
,, choroiditis ...	4
,, convergent squint ...	17
,, divergent squint ...	4

Some cases have more than one variety of these defects. There are 21 cases of squint in the series, and 6 cases have each an eye shrunken or wanting. In 2 cases an eye was lost before the nystagmus developed.

These associations are suggestive:

Occupations.—Scholars 40, housewives 16, labourers, etc., 9, miners 10, clerks 2, no occupation 5, young children 18.

Time of Onset.—Five years and under, 65; six to ten years, 21; eleven to twenty years, 7; over thirty years, 2; unknown, 5.

Movements.—Lateral 60, rotatory 22, vertical 6, oblique or irregular 12.

In several the movements are not always present, but are evoked by excitement, by hard work, or by looking upwards.

Here are two cases in some detail:

No. 99 is a boy aged 5 years, and the history obtained from his mother is that when he was two days old his eyes became severely inflamed, and began to discharge profusely. This condition persisted for three months, and during all this period his eyes were seldom open. When the inflammation subsided she observed that his eyeballs were unsteady, and this still continues, but the movements are now less severe than they were. Excitement or inspection by a stranger makes the movements worse.

He has opacities on both corneae, his refraction is hypermetropic astigmatism, and he has a slight convergent squint. While he was being examined lateral movements were obvious, but these were not constant. The movements are worse when he looks to the extreme right or left, but are not much influenced by other positions.

No. 48, Mrs. W., aged 30, has been affected with nystagmus since infancy. She is a thin, ill-nourished woman. Sometimes she complains of headache and giddiness. Her vision in each eye is—counts fingers at 3 ft. and in the right eye she has 16 D of myopia and in the left 20 D. She wears −16 D spheres and with these her vision is $\frac{6}{36}$. There are no corneal or lenticular opacities, and the fundi seem fairly healthy. The movements are lateral, of short range, and about 200 per minute. These are best seen in the dark room on looking at the disc by the indirect method. Objects looked at seem to her to be steady. When she looks upwards the movements take a wider range, but when she looks down, say, at the edge of the desk, the movements cease. When she throws her head backwards and to one side and looks at my ear the movements cease. When she assumes this attitude in the dark room the movements of the disc cease. She names colours correctly, but says she does not see well in dull light, and has "to light the gas early."

Other cases present the same phenomena.

Snell's theory of muscular fatigue cannot apply to these cases.

In some of my cases the refractive conditions could not be ascertained, but in all the others there are only two single eyes that can be said to be emmetropic, and no patient has both eyes emmetropic. If my cases are accepted as representative, then ametropia is the rule, and must be an essential factor in the etiology of ordinary or non-miners' nystagmus. In these cases the retinal images are ill-defined, feeble or imperfect. In the cases with corneal or lenticular opacities the retinal images must be more or less the same. In the cases with choroiditis or optic atrophy the images are not formed, or are not transmitted, or only imperfectly transmitted to the brain.

Velter, writing on insular sclerosis states[4]:

All parts of the visual pathway may be affected by the sclerotic changes.

Here again the transmission of visual impressions may be interrupted.

The amount of ametropia associated with miners' nystagmus is much disputed. Dr. Harrison Butler says[5]:

The incidence of errors of refraction is about the same as it is among normal miners—namely, 45 per cent. of my cases have an error of refraction.

Mr. Bernard Cridland says[6]:

I am convinced that refractive errors have no special connexion with the disease.

On the other hand, Drs. Browne and MacKenzie, in a review of 100 cases, say[7]:

Ninety per cent. had errors of refraction.

Dr. A. C. Norman says[8]:

In 200 cases I have found errors of refraction in upwards of 90 per cent.

Dr. T. L. Llewellyn[9] found 83 per cent. of ametropia.

If ametropia, or some equivalent, is essential in non-miners' nystagmus, then it must also be an important factor when it is present in the coal-miner; but the retinal images formed in the darkness of the mine can only be feeble or imperfect even when ametropia is not present, and so the latter may be less essential. *The feature that is common to ordinary and miners' nystagmus is imperfection of the retinal images;* these are feeble or ill-defined in the former, and feeble or faint in the latter.

There are several cases in which the movements are greater or more obvious in an eye that has the more defective vision owing to opacities, cataract, or squint, or in an eye that has the greater refractive error.

No. 54, a boy aged 9 years, has corneal opacities and low myopia. The left eye is the more myopic, has a slight convergent squint, and presents rapid lateral movements. The right eye occasionally shows slight rotatory or lateral movements.

No. 56, a girl aged 14 years, has corneal opacities and lateral nystagmus. The left eye has a slight divergent squint, and the movements are more obvious in this eye.

No. 63 is a man aged 36, formerly a policeman, but who for the last three years has been a coal-miner. A year ago he was struck above the right eye with a stone, and from this he dates the beginning of his complaint. His vision is: right eye, counts fingers at 3 ft.; left eye, $\frac{6}{9}$. He was sent to me as a case of monocular nystagmus. His right eye has obvious rotatory nystagmus, but on observing the left eye carefully it also is seen to rotate slightly. His right eye has 7 D of myopia, and his left eye 1.5 D of simple myopic astigmatism.

Lenoble and Aubineau[10] have sought to establish a grouping of symptoms or syndrome in which nystagmus is the principal and constant manifestation. They divide their cases thus: (1) Essential, or cases in which oscillation of the eyeballs is the only symptom. (2) Ocular oscillations associated with spasm of other muscles, stigmata of degeneration, and sometimes with intellectual enfeeblement or derangement. (3) The hereditary variety. They designate the whole syndrome *nystagmus-myoclonie.*

In my series there is intellectual feebleness in several cases, and the following are examples of hereditary nystagmus.

No. 1, a young woman, aged 24, has myopic astigmatism and lateral nystagmus. She says she was "born so." Her head also shakes. No. 2, the father of the above, has several dioptres of myopia and nystagmus. He is a miner, but says he has had the nystagmus from birth. He says he has two aunts and several cousins similarly affected, but these I have not seen. Another patient states that she has one brother and one sister affected as she is, but these also I have not seen. Two of my patients are brothers, both albinos, and both have pronounced hypermetropic astigmatism. The mother has brown hair and good vision. The father is fair-haired, but is not affected with nystagmus and formerly was a soldier.

Evidence of Spasm of the Accommodation.

Ohm[11] has occasionally seen miners' nystagmus combined with spasm of the accommodation. One of his cases, a miner aged 17, showed myopia of 4 D, but under atropine he had low hypermetropia. One case, on looking upwards, had myopia that ranged from 1.5 D to 6 D, and on looking downwards his refraction was +0.5 D.

Mr. Bernard Cridland says[12] "spasm appears to exist to a slight degree in a great many cases."

Snell's compositor affected with nystagmus was a young man aged 21, who had been working on night duty for six months, when suddenly objects seemed to be moving up and down. He had vertical nystagmus, his refraction was weak hypermetropia, and his vision was normal. He does not seem to have had spasm of the accommodation.

About the same time Mr. R. W. Doyne described[13] the case of a lad whose vision was below normal, but was raised to full vision by *minus* spheres. After a week's atropinization he was found to have about 1 D of hypermetropia, and the condition was considered to be one of spasm of the accommodation. Two years later he was again seen—now a telegraph clerk—when his vision was again defective, and under atropine the refraction was still hypermetropic. He developed an alternating convergent squint, and while one eye squinted the other was nystagmic. He also complained of occasional

diplopia. When one eye was closed and he was directed to follow an object outwards, the eye became nystagmic and did not turn outwards. When both eyes were uncovered and the patient directed to fix an object, one or other eye went into a position of extreme convergence and the before-mentioned symptoms of distress showed themselves. Under direct ophthalmoscopic examination the refraction was found to be constantly varying, but always myopic to some extent. Here, then, is a patient with spasm of the accommodation, occasional convergent squint, nystagmus, and diplopia.

The following are details of a case that came under my observation last year.

No. 58, a young woman aged 16, a photographer's re-toucher, came complaining of diplopia. Her eyes had been troublesome for a year, and they also troubled her when she was a schoolgirl. She is a large, well-nourished young woman. She had nystagmus, the movements being lateral, extremely rapid, and of short range. Her eyelids also exhibited short vertical movements. These movements of the eyeballs and eyelids, she said, were of some months' duration. She suffered from giddiness and headache. Her vision was: right eye = $\frac{6}{6}$; left eye = $\frac{6}{6}$; and with − 3 D she got $\frac{6}{5}$ in each eye. Her retinoscopy without a mydriatic and with the shadow unreversed was:

Right eye $+\frac{-3}{-3}$ Left eye $+\frac{-3}{-3}$

She had marked esophoria, and under the cover test the eyes came out to fix.

When I requested her to look at my finger from a distance of 2 ft. she did so for a few seconds, then an eye squinted inwards and she turned her face away.

She was ordered atropine ointment, and at the end of a week her vision was: right eye = $\frac{6}{6}$; left eye = $\frac{6}{36}$, and her retinoscopy now was:

Right eye $+\frac{+2}{+2}$ Left eye $+\frac{+3}{+3}$

but the diplopia and nystagmus persisted. She continued using the atropine for a few weeks, but less frequently, and then her retinoscopy was: right eye + 1.5, and left eye + 0.5. The movements of the eyeballs and eyelids were less severe, but became aggravated when she looked steadily at anything for a few seconds. The esophoria was still very marked, but changing; at one moment the streak of light formed by Maddox rods crossed at 7 degrees, and then swept off the board, as she squinted. There was also some slight vertical displacement, and she still complained of headache.

At this stage she contracted diphtheria, and was removed to a hospital for infectious diseases, where she remained for seven weeks. After an interval of three months she was again seen, when it was found that all her eye troubles had disappeared. Her vision was $\frac{6}{6}$ in each eye, her retinoscopy was low hypermetropia, the muscle balance was normal, and the eyeballs and eyelids quite steady. She was ordered + 1 D spheres for her near work. Here, then, is another patient with spasm of the accommodation, occasional convergent squint, nystagmus, and diplopia.

These two cases to my mind present the symptom-complex of nystagmus. Both had little refractive error, both had artificial myopia, and both were of short duration. I suspect they are not so rare as may be thought and probably are frequently seen with some of these manifestations wanting, or evoked only under certain conditions or positions. The following case may be of interest:

A girl, aged 11 years, was brought for treatment as she had been found defective under school inspection. Her vision was: right eye $\frac{6}{6} - 1 = \frac{6}{9}$, left eye $\frac{6}{6} - 1 = \frac{6}{9}$, and her retinoscopy, without a mydriatic, showed 2 D of myopia in both eyes. Her eyelids closed firmly every few seconds, and this seemed quite involuntary. While she was being examined in the dark room the right eye squinted inwards and the eyeballs moved laterally in an irregular manner. These manifestations lasted only a few seconds, but recurred. Under atropine her vision was: right eye $\frac{6}{6} + 1 = \frac{6}{9}$, left eye $\frac{6}{6} + 1 = \frac{6}{9}$, and her refraction was low hypermetropia. Her mother volunteered the information that she had been doing a large amount of sewing in the school.

Dr. Fromaget[14] has recorded 4 cases of latent nystagmus in which the oscillations of the eyeballs only occurred when one eye was closed and were absent when both eyes were open.

The tendency to fusion of images, in a certain measure, prevents squinting, and Fromaget thinks that there is an analogous function which prevents the production of nystagmus. Three of his cases had squint, and the reduced acuity of the squinting eye was sufficient to prevent nystagmus. The fourth case had no squint, but had corneal opacities, myopia, and probably only simultaneous vision. Mr. Doyne's case exhibited phenomena approximating those exhibited by Fromaget's cases.

One would conclude that binocular vision should even more effectively prevent nystagmus. The brain normally receives impressions from both eyes. The large number of squinters suggests a common basis of etiology or some causal relationship. It is also remarkable that so many of my cases began in infancy, a time when central fixation and binocular vision are only in process of being established. Hypermetropia is the normal condition in infancy, but it may be abnormal in degree, or associated with astigmatism. One of my patients, however, is a child 15 months old, and has 1.5 D of myopia.

The manifestations of ordinary and miners' nystagmus are practically identical, and one would anticipate at least a fundamental similarity in their etiology.

Dr. A. C. Norman says[15] that as the fovea centralis is not sensitive to a minimal stimulus,

> the miner instinctively moves his eyes so as to bring the feebly illuminated image upon some part of the macula other than the fovea centralis.

Dr. Edridge-Green[16] says:

> The fovea is blind when there is no visual purple in it, and this diffusion of purple into the fovea is caused either by light falling on an adjacent portion of the retina containing rods or by movement of the eye.

He thinks the rods are concerned only with the formation and distribution of the visual purple. In the fovea there are cones but no rods. These theories can only apply to miners' nystagmus. The ametropia of ordinary nystagmus does not imply absence of light, and the albino suffers from too much light in the eyeballs.

Mr. Maddox[17] states:

> Volition directs the eye and reflex action steadies it,

and in miners' nystagmus "this retaining power is lost." Reflex action implies a stimulus, and in nystagmus something is wanting, definition or brilliance of retinal images, or the transmission of retinal images, to the brain.

My cases are associated with squint, loss of an eye, opacities in the cornea or lens, or with ametropia, and these conditions in themselves, or apart from the nystagmus, were competent in most of the cases to render good or even fair binocular visual acuity an impossibility. Spasm of the ocular and other muscles seems to be, directly or indirectly, a consequence of bad vision or "imperfect stimulation of the retina."

Nystagmus is sometimes found in young people who do much near work, a condition suggesting that excessive use of the ocular muscles, especially the ciliary, is sometimes a factor in its production. The miner is an adult, and a more decided influence may be required to disturb a long-established function. In children the disorder may be more easily produced and perhaps the ametropia or other defect is equivalent to the darkness of the mine.

References.

[1] Llewellyn, *Miners' Nystagmus*, p. 43. [2] Thompson, *Trans. Ophthal. Soc.*, 1891, p. 87. [3] British Medical Journal, August 10th, 1912, p. 331. [4] Velter, *Ophthalmoscope*, February, 1913, p. 99. [5] Butler, *Ophthalmoscope*, December, 1912, p. 682. [6] Cridland, *Ophthalmoscope*, December, 1912, p. 701. [7] Browne and MacKenzie, British Medical Journal, October 5th, 1912, p. 837. [8] Norman, British Medical Journal, July 13th, 1912, p. 68. [9] Llewellyn, *Miners' Nystagmus*, p. 93. [10] Lenoble et Aubineau, *Rev. de Méd.*, 1911, p. 209. [11] Ohm, *Ophthalmoscope*, September, 1910, p. 674. [12] Cridland, *Ophthalmoscope*, December, 1912, p. 701. [13] Doyne, *Trans. Ophthal. Soc.*, 1891, p. 112. [14] Fromaget, *Annales d'Oculistique*, April, 1913. [15] Norman, British Medical Journal, July 13th, 1912, p. 69. [16] Edridge-Green, British Medical Journal, May 18th, 1912, p. 1127. [17] Maddox, *The Ocular Muscles*, pp. 16 and 195.

DISCUSSION.

Mr. T. Harrison Butler (Leamington) said miners' nystagmus was not of the same type as that found in hereditary nystagmus and nystagmus due to corneal opacities. Miners' nystagmus was often one of divergence of both eyes together or convergence of both eyes, or one eye rose while the other fell. In ordinary nystagmus this was not the case. In miners' nystagmus the speaker found a slight preponderance of ametropia compared with the normal miner.

DISCUSSION ON THE QUESTION OF EXCISION OF THE EYE IN CASES OF INJURY.

OPENING PAPERS.

I.—Malcolm L. Hepburn, M.D., F.R.C.S.,

Assistant Surgeon to the Royal London Ophthalmic Hospital; Ophthalmic Surgeon to the Royal Free Hopital.

The injuries of the eye with which we are called upon to deal are as follows:

1. Irritating fluids or other foreign bodies causing njuries to the conjunctiva, sclerotic, or cornea, but without perforation. This includes infected foreign bodies, leading to permanent damage of the cornea and hypopyon ulcers.

2. Penetrating wounds caused by some sharp instrument or foreign body, leading to prolapsed iris, injury to the lens, etc., or retention of the foreign body within the eyeball.

3. Blows on the eye, causing:

(*a*) Complete rupture with wound in the conjunctiva.

(*b*) Subconjunctival rupture.

And in both cases with or without extrusion of contents of eyeball.

The question of excision of the eye in cases of injury covers a far wider field than appears at first sight; it always presents difficulties, and is not alone confined to the problem of sympathetic ophthalmia, which naturally suggests itself. The art of saving an eye is just as important as the question of excision, since many eyes have to be excised owing to the failure of methods of treatment which, if more successful, would have resulted in preserving them; and a well-balanced judgement in dealing with all cases of injury in order to avoid excision is as hard to acquire, in my opinion, as in deciding the question of excision itself.

For these reasons the subject divides itself into four parts—namely:

1. Question of excision of the eye immediately or within a day or two of the accident.

2. Question of the postponement of excision and the line of treatment to be adopted in the interval.

3. Indications for excision after temporizing for a certain period.

4. Question of excision of the eye when the presence of sympathetic ophthalmia has become definitely established.

With regard to the first of these questions, unless an eye is hopelessly damaged or commences at once to suppurate, I see no reason for immediate excision on the ground of fear of sympathetic inflammation; it is perfectly safe to watch an eye before deciding the question. In spite of the fact that an injured eye has no perception of light, this does not preclude an attempt being made to save it, provided it be not disfigured beyond repair, for to my mind a slightly abnormal appearance in an injured eye is preferable to the alternative of an artificial one however carefully made, and is not so readily detected by unskilled observers, while the expense and care connected with an artificial eye is beyond the power of many people, and the ultimate outcome is often a contracted socket which leads to permanent deformity. The ordinary surgical methods for closing the wound and shutting off infection by dressings, etc., must be carried out in the case of the eye as elsewhere, and I attach no special importance to the so-called dangerous area at this stage in the treatment.

If an eye has suppurated, the question whether excision or evisceration should be performed depends on the likelihood of the eyeball rupturing during the steps of the operation. If such an accident is anticipated, evisceration is the safer procedure, since the sheath of the optic nerve may be contaminated by septic material carried down into the orbit by the scissors, which can hardly fail to have come in contact with the pus on the surface. If necessary, excision may be performed later.

If the need for immediate excision be rejected and a policy of temporizing be decided upon, the ultimate justification of the decision depends on the treatment to be adopted in the intervening period which is, I consider, of the utmost importance. It must be vigorous and without hesitation, since a policy of waiting for what one hopes may be a more favourable moment, often prevents the surgeon carrying out what he desires.

Little can be done with external non-perforating injuries to the conjunctiva, sclerotic, or cornea beyond those methods of treatment which are well known. In hypopyon ulcers thorough and extensive cauterization with the actual cautery, if necessary even into healthy cornea, must be immediately applied; carbolic acid, except in milder cases (and one can never tell whether one has a mild case to deal with or not) is of little use, and can never penetrate deeply enough owing to the coagulation of the tissues which provide an effective barrier against any further action, whilst often valuable time is lost. If in spite of this treatment the ulcer extends and especially, as is often the case, the tension is raised, the anterior chamber must be opened either through the base of the ulcer or through the limbus. When such eyes are excised they are lost through absolute glaucoma coming on owing to the iris first becoming adherent to the cornea at the original site of the infected area and subsequently being plastered along the whole of the posterior surface, thus obliterating the anterior chamber altogether; and I therefore incline to the view, which I am now putting into practice, of performing an iridectomy as soon as possible after deciding to open the eye. Communication must necessarily be established between the interior sterile part of the eye and the infected exterior, and I think an iridectomy adds but slightly to the risk and guards against the danger of secondary glaucoma. Those I have already done, and which have been some of my worst cases, show no serious complication as a result of operating on the uveal tract at this stage; and we must remember we are dealing here with desperate cases, where there is practically no fear of sympathetic ophthalmia.

In temporizing with penetrating wounds of the eye, with incarceration of the iris, wound of the lens, or retention of the foreign body within the eye, one must bear in mind that this class of case is most liable to lead to sympathetic inflammation; yet I consider there is seldom any indication for immediate excision. But the treatment in the intervening period must be carried out without waiting. In all cases expose the eye to the Haab magnet, no matter whether the results of an *x*-ray examination be positive or negative. If a foreign body can be brought forward into the anterior chamber and removed, the prognosis is always more favourable than when an attempt has been made to extract it at the posterior part of the eye and behind the lens.

Excise the iris freely if it is incarcerated, aiming at removing rather more iris tissue than less; it is far better surgery to do a wider iridectomy than seems desirable, or even repeated iridectomies, than risk a large permanent anterior synechia for the sake of a neat looking coloboma.

If the lens be injured and the lens matter is becoming opaque—not necessarily swelling up and coming forward—remove the lens substance by means of curette or washing out the anterior chamber at the earliest possible moment. Lens matter is a fruitful source of danger in any case, and is better let out at once. It may be necessary to repeat the process after a few days, and if it seems desirable I never hesitate to do it.

An injected eye never contraindicates this line of treatment, and I do not postpone operation on this account. In all probability the adherent iris or the lens matter is keeping up the irritation, and is only bringing the question of excision nearer. Although it has always been taught that it is inadvisable to operate on an eye until it is quiet, I think the cases we are here discussing constitute an exception to this rule. The only condition which leads me to regard the ultimate results of operative interference unfavourably is when the portion of adherent lens capsule or iris has a fluffy appearance indicating the presence of plastic exudate which may very easily cause reattachment, unless the division of the synechia can be accomplished without loss of aqueous, which is sometimes difficult.

With regard to the retention of a foreign body in the eye which cannot be removed, we are led to suppose that in these cases sympathetic ophthalmia is most likely to arise at some future time; and, indeed, this is distinctly the class of case to avoid temporizing with too long if the eye does not quiet down in a reasonable time; but I

believe it has yet to be proved that, if such an eye *does* quiet down within a reasonable time, and no operative interference through the vitreous cavity has been attempted, there is danger of the occurrence of sympathetic ophthalmia.

Blows on the eye with or without rupture of the conjunctiva occur at the thinnest part of the sclerotic just behind the limbus, and the complications arising are therefore much more difficult to deal with than in perforating wounds of the cornea. Prolapsed iris in this region often involves the ciliary body as well, so that a satisfactory excision of the prolapsed portion is impossible, and any attempt, so far from improving matters, only adds to the dangers. The lens is often dislocated either into the anterior chamber or vitreous, or beneath the conjunctiva, and operative interference directed towards its removal is attended with grave risks from infection and other causes. Moreover, my experience in these cases is that they take a very long time to settle down, much longer, indeed, than it is advisable to wait, and there is no treatment which appears to hasten their recovery, and most of them, I think, come to excision.

The third group relates to the indications for excision after waiting for a certain period, and as regards the length of time to allow for temporizing in this manner, it must be necessarily a matter of conjecture how long to leave an eye, and the limit of safety varies in different people. Roughly speaking, after six weeks or two months, if an eye is not quiet, one enters on a period of apprehension, and the question of sympathetic inflammation becomes uppermost in one's mind, but the precise moment when excision should be undertaken is very difficult to determine, and one must be prepared to face the situation of deciding to remove an eye which, if left alone, might conceivably have recovered. If there is no perception of light the decision is simplified, for I see no reason, after giving the case a fair chance and exhausting all the methods of treatment and operative measures already mentioned, for keeping in the head a blind, inflamed, useless, and probably painful eye. If, however, there is some useful vision, the problem is a very anxious and difficult one, and the indications for excision must be those which manifest themselves before the appearance of keratitis punctata in the *exciting eye*. When this sign shows itself, there is good reason for believing that the pathological processes which give rise to sympathetic ophthalmia have already become established and that the danger of the other eye becoming affected already exists, and although the eye ought to be removed at this stage, we can never be sure that we are really in time to obviate this danger.

The signs to which I attach most importance are:

1. Continued injection of the affected eye which has shown no evidence of abating during the whole of the temporizing period.
2. Sympathetic irritation. From a clinical standpoint, I draw no distinction between sympathetic irritation and sympathetic inflammation beyond that one is an earlier stage than the other.
3. A greenish semitranslucent appearance of the iris.
4. Hazy, indistinct, whitish reflex from the fundus.
5. Continued fluffy appearance of the lens capsule.
6. Tendency to lowered tension.

If any of these signs are present, I consider excision of the exciting eye should not be delayed very long. If the eye be removed at this stage, I do not think we need fear the development of sympathetic ophthalmia. I confess I am rather sceptical about the theory of remote sympathetic (I mean by that after several years' interval), as there are so many causes of cyclitis which may operate at any time independently of an injury, and which are indistinguishable clinically from sympathetic, that when once an eye has been excised, or has quieted down, and the interior of the eye shut off from infection, I see no ground for supposing the entry of the specific organism unless the wound be reopened.

The last division of this subject is the question of excision of the exciting eye when sympathetic inflammation has been definitely shown to exist by the presence of keratitis punctata in the sympathizing eye. Under these circumstances it is the generally accepted opinion that if there is vision in both eyes at this stage it is better not to excise the exciting eye, since the vision in this eye may eventually turn out to be superior to that in the sympathizing eye, and I think it would be a dangerous practice, in the present state of our knowledge, to depart from this rule. If, however, there is no perception of light in the exciting eye, it is best removed, since it is possible that its presence may be an additional source of irritation.

II.—R. Affleck Greeves, F.R.C.S.,
London.

When an injured eye is seen immediately after injury the question of its removal will depend on whether the damage to the eye is so severe as to preclude any possibility of preserving useful vision.

The development of panophthalmitis, or suppuration in the eyeball, which is the result of the introduction of septic matter through a perforating wound and necessarily an early sequela of injury, is in the same way an indication for the removal of the eye or its contents; an eye in which panophthalmitis has developed will never serve any useful purpose, phthisis bulbi being the inevitable result.

The question of the advisability of removing an eye some time after it has been injured is usually a more difficult matter. All will admit as an axiom, I think, that a blind, unsightly, and painful eye must be removed in all cases, but it is a different matter when the injured eye retains a measure of useful vision, or even when, though blind, the eye is not so disfigured as not to be preferable to an artificial one. By far the most important consideration in most cases of this kind is the possibility of damage to the sound eye through the development of sympathetic ophthalmitis if the injured eye be preserved.

And although there are certain important danger signals, of which the appearance of keratitis punctata in the injured eye is probably the most serious, sympathetic ophthalmitis is unfortunately not diagnosable clinically until the uninjured eye has become affected by the disease, the causative agent and method of spread of which are still matters of conjecture.

Histologically, however, the inflammatory changes found both in exciting and sympathizing eyes, examined microscopically, have been shown to conform to a definite type. These appearances are different from those found in other forms of uveitis, and that they are typical is shown by the fact that Fuchs, by mere examination of the sections of 200 eyes excised for injury, was able accurately to separate them into those which had given rise to sympathetic ophthalmitis and those which had not. In such eyes the whole uveal tract is found to be involved in the inflammation, the choroid being usually the seat of most inflammatory reaction. The choroidal infiltration begins in the outer parts of the choroid and is of a nodular character, the nodules being composed mainly of lymphocytes and epithelioid cells; in many cases giant cells are present too. Caseation never takes place, cicatrization being the final outcome of the inflammatory process. The ciliary body is always involved, which is what one would expect from the clinical manifestations, and, to a variable extent, the iris. There is usually well-marked plastic exudation in exciting eyes; but this is not so constant a feature in sympathizing eyes, and may not be a part of the true "sympathetic" process. Signs of inflammation in the optic nerve are inconstant.

These pathological appearances are of great interest and importance in that they tend to show that sympathetic ophthalmitis is a definite morbid entity, and essentially different from other forms of uveitis, and one can form an opinion from the examination of sections of eyes in which they are present as to what conditions are likely to give rise to sympathetic ophthalmitis. An important element is thus added to what is already known as to history and clinical appearances in these cases. With this in view I have looked up the records of all the cases at Moorfields during the past fifteen years in which these changes have been found in the excised eyes. In each case evidences of sympathetic inflammation developed in the uninjured eye either before or within a week of the enucleation of the injured one. The interval between the injury and the appearance of inflammation in the injured eye was never less than two weeks, and in the majority of cases not more than three months. In 1 case there was an interval of four years, and in 2 one of over twenty years. In the case where there was the four years' interval a history of

a second recent injury, six months before the other eye became inflamed, was obtained; but no such evidence was forthcoming in the other 2, in both of which the exciting eye was blind, and in one of which it was shrunken.

It seems possible, however, that a comparatively slight injury to an unhealthy and blind eye might be sufficient to cause a perforating wound, or at least to open a channel by which infection could enter the eye and yet might pass unnoticed. Perhaps the long interval between the injury and the onset of sympathetic inflammation recorded in some of the cases may be explained in this way.

In none of the Moorfields cases can a perforating injury be excluded, and in practically all of them there is a record of incarceration of the iris, ciliary body, lens capsule, or a combination of these, in the wound. The accompanying prolapse of one or more of these structures which occurs in wounds of the so-called dangerous area is probably the essentially dangerous element, and not the actual position of the wound. In two recent cases at Moorfields which developed sympathetic ophthalmitis the wound was strictly limited to the cornea, but in each case the iris was prolapsed and could not be freed. In a condition of this kind infection of the uveal tract can easily take place, and the delayed healing of the wound gives rise to a long period during which infection may occur; this may account for varying periods of onset.

It is noteworthy that although many eyes with retained foreign bodies have been enucleated at Moorfields during the past fifteen years, not one showed the typical appearances of sympathetic inflammation, nor did any give rise to sympathetic inflammation in the other eye. Intervals of from a few days to forty years between the entry of the body and the enucleation of the eye are represented, as well as various kinds of foreign body; of these, pieces of iron and steel are the most numerous, and in the case with the longest interval the body was a piece of glass. It would seem that retained foreign bodies are not dangerous *per se* from a sympathetic point of view, apart from the nature of the wound caused by the body in entering the eye, or by operative measures undertaken for its removal.

Leaving sympathetic ophthalmitis out of the question for the moment, the behaviour of an eye into which a foreign body has entered depends partly on whether the body is contaminated with organisms, and partly on the chemical nature of the body itself, as well as on the situation in which it lies. If septic, a panophthalmitis may be set up, rendering early removal of the eye or its contents necessary, or if the organisms are not sufficiently virulent for this, a less severe inflammation may be caused, which may eventually quiet down. Again, if the body is soluble in the intraocular fluids, chemically irritating substances resulting from its solution may set up inflammation; iron and steel are less irritating in this way than copper or brass. Particles of metal may become encapsulated, the eye quieting down, but siderosis bulbi takes place, and the sight of the eye is inevitably lost through degeneration first of the ganglion cells and nerve fibres, and eventually of the whole retina. Degeneration of the retina occurs quite early, and detachment is common.

Eyes with retained foreign bodies are often subject to intermittent attacks of pain, so that the eye becomes a nuisance, and sympathetic irritation may be set up in the other eye, a condition which renders removal of the exciting eye necessary. So that although they are probably not dangerous in the sense of causing sympathetic ophthalmitis, it not infrequently happens that it is advisable to enucleate these eyes with retained foreign bodies for other reasons. The lens is said to be more tolerant of foreign bodies than other parts of the eye; while foreign substances situated in the neighbourhood of the ciliary body are specially liable to give rise to persistent inflammatory trouble.

It is well-known that eyes in which panophthalmitis has taken place are not liable to give rise to sympathetic ophthalmitis, and various theories have been advanced to account for this fact. The same statement applies to eyes with perforating ulcers, and whatever the cause may be it is probably the same in both cases. The possibility of sympathetic inflammation as a sequela of a perforating ulcer cannot, however, be excluded; one of the recent cases at Moorfields was of this nature. In this case sympathetic inflammation in the sound eye followed five months after the perforation of a hypopyon ulcer, no operative measures of any kind having been undertaken. The exciting eye, being staphylomatous and blind, was excised; it showed the histological changes typical of sympathetic ophthalmitis.

Although the shrunken eyes, often containing bony choroids, which result from panophthalmitis, are not usually dangerous from the point of view of sympathetic inflammation, and when quiet are quite innocuous, they ought to be excised if fresh inflammation and pain should occur. An eye in this condition is liable to give rise in the other eye to the condition known as sympathetic irritation, by which term a train of symptoms, including photophobia, lacrymation, and fatigue of accommodation, is understood. This condition, although an absolute indication for removal of the exciting eye, is most likely a nerve reflex, and in no way connected with true sympathetic inflammation, which is not preceded by such prodromal symptoms. Enucleation of the exciting eye is a cure for the condition, and the excised eyes do not show the appearance typical of sympathetic inflammation. The cases at Moorfields in which eyes have been excised for sympathetic irritation only, bear out this view, and Fuchs's series of cases points to the same conclusion.

Old shrunken eyes, on the other hand, have occasionally, if rarely, given rise to true sympathetic inflammation, but as I have mentioned before, the question of infection through a fresh injury comes in here.

In all cases where sympathetic inflammation has occurred a long time after injury there has been a recrudescence of inflammation in the injured eye to begin with, and in view of this the safest course is to excise an injured eye which, after a quiet period, shows signs of fresh inflammation. The presence of keratitis punctata is, of course, a specially serious sign.

III.—S. H. BROWNING,
London.

EXCLUDING those cases in which excision is necessary on account of the extent of an injury to the eye, probably more injured eyes are removed from fear of the development of sympathetic ophthalmitis than for any other reason. The consideration of the problem arising in such cases will be simplified by the preliminary consideration of the blood count in sympathetic ophthalmitis before going on to the application of the blood count to the prognosis in perforating injuries of the eye, whether accidental or the result of surgical procedure.

Gradle was the first person to study the blood count in perforating injuries of the eye, but his results were of very little value, because he did not sufficiently differentiate the various kinds of lymphocytes. For the purposes of his paper he divides the blood cells into polynuclears and mononuclears. This method, of course, totally destroys the value of a differential blood count, and, as I hope to show you presently, it quite masks the chief point of the count in sympathetic ophthalmitis, namely, the increase in the large mononuclear leucocytes. About the same time that Gradle was working at perforating injuries I was making differential blood counts of the blood of patients suffering from well marked sympathetic ophthalmitis. I found that there was a typical blood picture in practically every case. There was a marked increase in the number of large mononuclear leucocytes and some increase in the lymphocytes, while the polymorphonuclear leucocytes were diminished. The total white cell count did not vary much beyond the normal limits. The type of count which I found is shown in Table I. A normal differential blood count is shown for comparison.

TABLE I.

Average Normal Blood Count.

Polymorphonuclears	60 — 70 per cent.
Lymphocytes	20 — 23 ,,
Large mononuclear leucocytes...	2 — 5 ,,
Eosinophiles	2 — 4 ,,
Mast cells	0 — 1 ,,

Average Blood Count in Sympathetic Ophthalmitis.

Polymorphonuclears	54 per cent.
Lymphocytes	28 ,,
Large mononuclears	16 ,,
Eosinophiles	2 ,,
Mast cells	0 ,,

TABLE II.—*Blood Count in Protozoal Diseases.*

Disease.	Polymorphonuclears.	Lymphocytes.	Large Mononuclear Leucocytes.	Eosinophiles.	Mast Cells.
Malaria[1]	50.2 %	18.1 %	31.0 %	0.4 %	0.4 %
Malaria[2]	39.0 %	19.1 %	41.0 %	—	0.6 %
Syphilis	50.0 %	27.0 %	22.0 %	1.0 %	—
Agchylostomiasis[3]	48.7 %	14.4 %	13.3 %	23.0 %	0.6 %
Trypanosomiasis[4]					
Kala-azar[5]					
Sympathetic[6] ...	52.0 %	22.0 %	24.0 %	2.0 %	—

[1] Christophers and Stephens. [2] Bastianella.
[3] Boycott and Haldan.
[4] "The leucocytes are normal as a rule with an increase of mononuclear cells."—Castellani and Chalmers.
[5] "An increase of the mononuclear leucocytes and lymphocytes."—Rogers.
[6] Price Jones and Browning.

In Table II are shown blood counts in some of the protozoal diseases, and the striking similarity between the blood counts in these diseases and that of sympathetic ophthalmitis can be noted. It will now be understood why I make such a point of the careful and exact differentiation of the various blood cells in the differential count in sympathetic ophthalmitis. At the time that he was making his blood counts Gradle was unaware of the fact that protozoal diseases give a typical count, and his method of classifying the blood cells clearly shows this. These tables suggest the hypothesis that sympathetic ophthalmitis is a protozoal disease. In my opinion there is other evidence pointing in this direction. The pathological appearances of sections of sympathetic eyes as described by Fuchs are suggestive of some part being played by a disease such as syphilis.

Salvarsan having been found of great benefit in other protozoal diseases besides syphilis, such as yaws, relapsing fever, trypanosomiasis, etc., the next procedure was to try the effect of treating patients suffering from sympathetic ophthalmitis with this drug. The result was encouraging, as not only was the eye condition at once relieved, but the blood count rapidly approached the normal. A large number of cases have now been treated at Moorfields Eye Hospital with "606" or "914," sometimes with complete success, at other times without permanent benefit. The results in general have been so successful that nearly all cases of sympathetic ophthalmitis at Moorfields are now treated with one of the salvarsans.

As I had almost invariably found that well marked cases of sympathetic ophthalmitis gave the typical protozoal count, I proceeded to investigate the time interval between the perforating injury and the appearance of a pathological count, also to determine whether the count could be used for the early diagnosis or prognosis of sympathetic ophthalmitis in cases of perforating injury of the eye.

For this purpose I examined the blood of a number of patients admitted to "Moorfields" with perforating injuries, and found that in many cases the blood showed marked changes at a time when there was still no other evidence pointing to the probable onset of sympathetic ophthalmitis.

One of the chief difficulties as regards the blood count in sympathetic ophthalmitis is that in some cases of well marked disease the blood count will remain normal for weeks and then suddenly show all the signs of a typical protozoal count. From this it will be obvious that a normal blood count does not exclude the possibility of sympathetic ophthalmitis supervening. I am of opinion, however, that the positive count, namely, an increase in the large mononuclear cells with some lymphocytosis is very ominous. As it is probable that in sympathetic ophthalmitis a systemic infection has already occurred before the pathognomonic eye changes appear, the blood count will afford a method by which this infection may be demonstrated before the sound eye becomes obviously diseased. The following case illustrates this point:

A man was admitted on September 12th under Mr. Lawford suffering from a perforating injury by a piece of steel in his left eye. The steel was removed the same day by the small magnet, a prolapse of the iris was subsequently excised. The injured eye did well. On September 20th, 1911, I made a blood count, and the following are the results of that and future counts:

September 20th, 1911.—Polymorphonuclears, 69 per cent.; lymphocytes, 23.5 per cent.; large mononuclears, 5.6 per cent.; eosinophiles, 2 per cent.

September 27th, 1911.—Polymorphonuclears, 71 per cent.; lymphocytes, 20 per cent.; large mononuclears, 6 per cent.; eosinophiles, 3 per cent.

These are normal counts, but after this we find a change, especially in the large mononuclears.

September 28th, 1911.—Polymorphonuclears, 62 per cent.; lymphocytes, 20 per cent.; large mononuclears, 18 per cent.

September 29th, 1911.—Polymorphonuclears, 59 per cent.; lymphocytes, 28.5 per cent.; large mononuclears, 10.5 per cent.; eosinophiles, 2 per cent.

At this date the right eye was noticed to be sensitive to light.

September 30th, 1911.—Polymorphonuclears, 63 per cent.; lymphocytes, 12 per cent.; large mononuclears, 24 per cent.; eosinsophiles, 1 per cent.

Mr. Lawford, on account of the irritation in the sound eye, and as a result of the blood count, decided to remove the eye. As will be seen by the following counts, the blood returned to normal and the uninjured eye became quiet.

October 2nd, 1911.—Polymorphonuclears, 72 per cent.; lymphocytes, 14 per cent.; large mononuclears, 12 per cent.; eosinophiles, 2 per cent.

October 3rd, 1911.—Polymorphonuclears, 71 per cent.; lymphocytes, 18.5 per cent.; large mononuclears, 9 per cent.; eosinophiles, 1.5 per cent.

October 4th, 1911.—Polymorphonuclears, 62 per cent.; lymphocytes, 25.5 per cent.; large mononuclears, 5 per cent.; eosinophiles, 4 per cent.

The patient left hospital with the uninjured eye quite well, and did not develop sympathetic ophthalmitis.

In this case we have definite indication of an infection subsiding when the infective focus is removed. As a result of the cases which I have examined I am of the opinion that the blood count is of value in the diagnosis of sympathetic ophthalmitis following perforating injuries of the eye, but I wish to make it clear that I do not consider lymphocytosis *per se* the important point, but rather the increase in the large mononuclear leucocytes and only to a certain extent the increase in the lymphocytes. I think that the blood count shows the protozoal nature of the disease and the lymphocytosis recorded in Gradle's tables does not and cannot bring this point out.

In a paper read before the Heidleberg Congress last year on lymphocytosis in perforating injuries Franke states that lymphocytosis offered no diagnostic or prognostic value in sympathetic ophthalmia. His contention that lymphocytosis may be found in cases of old perforating injuries which had healed and remained quiet for several years, and in which there was no likelihood of sympathetic ophthalmitis occurring, is not supported by facts, for such a conclusion would make either lymphocytosis a normal condition, which is absurd, or a pathogenic one, which he denies.

Sattler, also at the Heidleberg Congress, recording his experience in his clinic at Leipzig, mentioned that he placed great value on the blood picture in the prognosis of sympathetic ophthalmitis. Purtscher and Koller, working under Fuchs, came to the conclusion that the blood picture was a valuable diagnostic aid.

Much work still remains to be done before any absolute decision can be arrived at, but the investigations which have been made and the results obtained suggest that a step forward has been made in the effort to determine the cause of sympathetic ophthalmitis and to find a means for its early diagnosis.

In conclusion I would suggest that differential blood counts should be made in all cases of perforating injuries and that in the event of a positive count, steps should be taken to prevent the occurrence of sympathetic ophthalmitis, whether by excision of the injured eye or by the administration of salvarsan: and also that salvarsan should be used in all cases of sympathetic ophthalmitis whether the blood count is typical or not.

My thanks are due to Mr. Lawford for permission to publish the above case.

DISCUSSION.

Dr. E. E. MADDOX (Bournemouth) said: While grateful for such admirable papers, and especially for the addition of salvarsan to our resources against the dire disease of sympathetic ophthalmitis, I cannot quite go so far as to accept that what used to be called the dangerous

zone "has no special importance." I should have thought that at least 90 per cent. of accidents resulting in sympathetic ophthalmitis affected the ciliary region, either in whole or in part, or at least communicated with it, by incarcerated iris, which acts as a channel of infection to it in the manner so well described by Mr. Greeves. Pending the rather slow discovery by pathologists of the real nature of sympathetic ophthalmitis, we are glad of the smallest clues which may act as finger-posts in our endeavours to advance the therapeutics of the disease. Some of the clinical facts are especially suggestive. (1) The penetration of the globe seems necessary for the great majority of cases, suggesting that some agent has been implanted, and, should it be a protozoon, it must be one of extremely common occurrence. (2) A staphylococcal infection seems to destroy the infective agent. (3) The extent of the injury bears but slight relation to the occurrence of sympathetic ophthalmitis. The minutest splinter of wood entering the ciliary body has been known to cause it, while extensive wounds may not do so. (4) When both eyes are operated upon simultaneously there seems to be more danger than usual of an inflammation resembling sympathetic ophthalmitis, though its true character is not proved. (5) It has always been recognized that a disorganized eye is more dangerous if it possess the qualities of tenderness and softness. The tenderness indicates merely that the ciliary body is inflamed. The softness led to the correlative belief that a hard eye is extremely unlikely to become the exciting one, so long as it remains hard. I am not so confident now as I used to be on this point, though still believing there is a good deal in its favour; and it raises the question whether we could not artificially harden some of these soft old eyes either by subconjunctival injections of dilute acid, on the lines of Fischer, or by the instillation of some reagent. Many years ago my friend Dr. Burdon Cooper brought to my notice pyridine as likely to be worth trial as a very penetrating antiseptic. We tried it together on some of my hospital patients, finding, however, its introduction too painful (though harmless) to be worth the rather slight antiseptic effect obtained. In three cases, however, an unlooked-for side-effect appeared—soft eyes became rapidly hard; and this might be worth further investigation. For small wounds of the ciliary region, such as that by the splinter already referred to, I have much faith in the thermo-cautery, provided it be followed immediately by a secure cover of conjunctiva drawn over the wound. Nitrate of silver in solution makes a good antiseptic for these cases after the use of the cautery, since it penetrates just about deeply enough without getting into the vitreous chamber.

Dr. John O. McReynolds (Dallas, Texas) said: The question of excision in cases of severe injury to the eye is certainly one of the most difficult as well as one of the most responsible problems presented for our solution. I have endeavoured to make a patient and careful study of the practical phases of the subject, and in addition to the published literature at my command I have taken the reports of various ophthalmic hospitals of America and Great Britain, and then I addressed a series of inquiries to a large number of American ophthalmologists requesting their views upon the important points still veiled in doubt. A part of my conclusions I herewith present. The definite cause of transferred ophthalmitis has not yet been determined. The minimum period of onset is very rarely indeed under ten days. The maximum period observed (by myself) was sixty years. The most frequent period was from four to eight weeks after the injury. It almost invariably follows a non-suppurative but plastic irido-cyclitis of traumatic origin. It has occurred with astonishing frequency after well executed intraocular operations, especially those for glaucoma and cataract, and that in the hands of our most skilful surgeons. With reference to foreign bodies retained within the globe, the patient should be thoroughly impressed with the truth that the danger lies not simply in the retention of the foreign body, but in the injury and infection inflicted in its flight. This is important, so that the patient should not be deluded into the sense of false security when a foreign body has been brilliantly extracted from the corpus vitreum. Foreign bodies long retained within the globe without signs of irritation may be successfully removed; but in every such case the patient should be informed that the traumatism consequent upon its removal may be such that an enucleation may become speedily imperative. The danger is always present when the inflammation in an injured eye refuses to subside; and if such an eye is sightless the preservation of the globe will not justify the risk involved. If the injured eye has vision and the irido-cyclitis continues to persist after four weeks without abatement, the extreme hazard must be clearly presented to the patient, and the surgeon's advice would depend upon the amount of vision present and the degree of irido-cyclitis. The presence of a blind injured eye in a child does not offer sufficient compensation in the possible development of the orbit to be worthy of consideration when a question of such gravity is concerned. A timely enucleation or complete evisceration will almost surely prevent the development of disaster. The popular notion as to the character and gravity of sympathetic affections is so entirely remote from the real importance of sympathetic ophthalmia that, inasmuch as we cannot possibly change the prevailing view, we should ourselves adopt a term which would be less confusing and more in accord with the pathological findings clearly established, and I would advocate the expression suggested by the late Dr. Charles A. Oliver, of Philadelphia—"transferred ophthalmitis."

Mr. Harrison Butler (Leamington) said much doubt had been thrown upon the question as to whether Fuchs's inflammation was really typical of sympathetic ophthalmitis. Deutschmann denied it, and he had succeeded in producing sympathetic ophthalmia in monkeys, from which he had isolated a diplobacillus. Perforated ulcers did not cause sympathetic ophthalmitis unless they had been operated upon. Copper was never tolerated in an eye.

Colonel Elliot, I.M.S. (Madras) strongly enunciated the danger of excising suppurating eyes. He had known meningitis develop as the result. He thought it very wrong to subject the patient to the risk of sympathetic ophthalmitis by trying to keep an eye which was dangerous. In the East the natives were very adverse to excision, and evisceration and optic ciliary neurectomy were useful operations in such cases.

Mr. Devereux Marshall (London) said that the question of excising suppurating eyes was one which always brought forth much argument. He himself had no fear of removing an eye in this condition. He excised every suppurating eye he could come across. It was true that he had seen meningitis follow the operation, and he had also seen fatal results occur from the same disease when the eye had not been excised. In both cases he attributed the development of this disease to the fact that the eye had not been excised soon enough, and he utterly failed to see how an eye full of pus retained in the orbit could be looked upon as a prophylaxis against a septic meningitis. If the eye to be removed was certain to rupture while it was being excised, then he preferred to eviscerate it, and when all septic material had been washed away, he then excised the sclerotic, which was, of course, in an infective condition. He highly congratulated Mr. Browning on the work he had done, and had had several cases under his own care successfully treated by the methods he advocated.

Mr. H. H. Taylor (Brighton) was fully convinced of the danger of excising suppurating eyes.

Professor Reeve (Toronto) thought excision was the best treatment.

Colonel Pridmore (Rangoon) said that they should never run the risk of allowing sympathetic ophthalmia to develop in children by leaving a dangerous eye. In adults it was somewhat different, and more conservative methods might be adopted for the patients were more under control. He expressed surprise at Colonel Elliot's remarks as to the danger of enucleating suppurating eyes. He had removed hundreds of them, and had never had any trouble, and he considered it the correct operation in these cases.

Mr. Wray said so far no mention had been made of dionin in the treatment of wounds likely to lead to sympathetic. Its virtues might be all that was claimed, but it would be wise for ophthalmic surgeons to instil it into their own eyes before using the drug in strong solution on their patients. It caused acute pain. To him there seemed very little reason for removing the entire eye in cases of suppuration, and for some years he had performed evisceration in these cases. On one occasion he had removed a piece of metal from the iritic angle that had been in the eye for twenty-five years. The patient made an excellent recovery, with vision ½. He had now under observation a patient operated on by another ophthalmic surgeon, in which sympathetic in a severe form had existed for about seven years. The case had been treated mostly by means of mercury; and as the pupils were practically closed the question of an iridectomy was rapidly becoming urgent, and an opinion as to procedure would be acceptable. As regards the general treatment of this and similar diseases, the main point seemed to be to get rid of the toxins and leave the unirritated tissues to deal with the bacteria. For that reason he recommended exercise in the open air, together with free potations of water and the use of mercury internally.

Mr. Maurice H. Whiting (London) described a case of perforating injury of the globe, which was excised on the thirteenth day. Ten days later photophobia developed, with raised mononuclear blood count. The patient was treated with neo-salvarsan, and had no recurrence of the sympathetic symptoms. In view of such cases the injured eye might be left for as long as a week without danger. Mr. Browning's work in the laboratory was particularly valuable because it was so associated with clinical work. As a treatment for suppurating eyes he preferred evisceration followed by excision.

Dr. R. Affleck Greeves, in reply, said that the pathological appearances of sympathetic inflammation had been found in the earliest cases. As to the two cases in which there was an interval of twenty years, the interval was between the occurrence of injury and the onset of inflammation; the injured eyes had not been excised. As to the encapsulation of organisms, an example was the tubercle bacillus; this might remain quiescent in encapsulated lesions for years. He had been struck with the frequency with which a low intraocular tension was recorded in the cases of sympathetic ophthalmitis at Moorfields. But on investigating the matter he had found that in eyes which developed sympathetic ophthalmitis after cataract extraction, the tension was almost always high. This was what one would expect with an incarcerated capsule and iris. Sympathizing eyes, too, often showed a raised tension. Injured eyes, from the nature of their condition, tended to have a low tension, and, again, the ultimate result of sympathetic inflammation pathologically was cicatrization, and consequently a low tension clinically. With regard to what Mr. Marshall had said as to a case in which a piece of glass was retained in an eye which preserved useful vision, this was possible with inert substances, but intraocular pieces of metal underwent solution, and so invariably caused retinal degeneration. So far as the speaker was aware, no one had published any statistics controverting Fuchs's statements, and in the speaker's own experience the nodular lymphocytic type of infiltration was characteristic of sympathetic uveitis, and eyes in which this process was going on showed appearances essentially similar, though perhaps differing in detail.

THE PERSISTENCE OF THE NERVE PLEXUS OF THE IRIS AFTER EXCISION OF CERTAIN GANGLIA.

By W. B. Inglis Pollock, M.D., F.R.F.P.S.

(Abstract.)

There has been considerable controversy over the question of how far the post-ganglionic plexuses are independent of the central nervous system. The work of J. McIlroy has established the independence of the peripheral neurons of the retina, but so far the evidence as regards plexuses acted upon by efferent neurons is inconclusive. Fletcher could not find any local trophic centres in the retractor penis of the hedgehog after section of both the inhibitor and motor sets of nerve fibres, although he admitted his results were not conclusive. It appeared possible to find a solution of the question in the nerves of the iris since Brown-Séquard obtained a contraction of the pupil by light in the excised iris, and de Rupter dilatation by atropine in the excised eyeball.

My spare time during the last three years has been devoted to this work. To obtain a denervated iris the ciliary ganglion and the superior cervical sympathetic ganglion were both excised. The interval between the operation and the histological investigation varied, but fourteen days was found to be most satisfactory. Albino rabbits were employed for the entire series of experiments. Different staining methods were tested. The modified Cajal seemed for a time to give good results, but it had to be given up on account of the capricious staining.

Methylene blue was finally adopted according to the procedure of Hosch. Several experiments were described and evidence given that a motor plexus with nerve cells exists in the sphincter and dilator pupillae muscles.

The plexus persists after complete separation of the iris from the central nervous system by removal of the ciliary ganglion and the superior sympathetic ganglion. It may therefore be regarded as of the same nature as the plexuses of Auerbach and Meissner in the intestines.

[The paper was illustrated by lantern slides, and will be published *in extenso* in the *Archiv für vergleichende Ophthalmologie.*]

DEMONSTRATIONS.

Mr. Bishop Harman (London) showed:

1. "A Variable Test Type," especially adapted for use in school work. The test type had for its signs the block E, after the fashion of Hirschberg's test types, but only one sign was given for every grade of the test. The signs were mounted on turn-tables, so that their position could be varied indefinitely. In one model the whole were geared so that the movement of a milled head caused all to turn in different directions. The children were taught to regard the E sign as three fingers, turned up, down, to the right or left. The teacher should draw these signs in large size and teach the whole class "signal drill," showing the children how to stretch out three fingers of both hands in the position of the fingers of the E sign pointed to. After such drill vision testing was quick and sure. The test had the advantage that it called for the least mental response possible in an eye test. Further, it was impossible for it to be learnt by heart—a no small consideration in school work. The test had already had extensive use in London, and it had been found of particular value in work amongst defective and ignorant children. [These types will be found further described at page 1164.]

2. A "Typometer" for measuring the print of books. He said that the British Association's report on the influence of the print of school books on the sight of the child had stimulated interest in printing. The typographical scale of the minimum size type and interlinear space allowable in the books for children of different ages given in that report introduced the necessity for the accurate measurement of the types and print. This was not an easy performance with ordinary scales. He had had this measurer made for the purpose. It gave a simultaneous view of print and scale magnified three diameters. The scale was graduated to quarter millimetres, and twenty millimetres of print was exposed to view at one time. The typometer was made by Messrs. Dixey and Melson Wingate, of London.

3. A spectacle attachment for the use of presbyopes who habitually wore distance glasses. The attachment consisted of two small D-shaped lenses, with the required near vision correction set in a frame with a double bridge, set so as to permit the small frame to be slipped between the distance spectacles and the face, and remain securely in position. It provided a bifocal arrangement, which could be put on or removed instantly with the use of one hand only. There were no hooks or bars; the attachment stayed in position by reason of its shape alone. This was made by Messrs. Dixey and Melson Wingate.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

APPENDICITIS FOLLOWING TONSILLECTOMY.

In the Journal of September 27th Dr. Still mentioned in the discussion following Mr. Lockwood's paper, in the Section of Diseases of Children, on acute abdominal inflammation in children, the not infrequent association of tonsillitis with appendicitis. Instances of such occurrences were mentioned by Mr. Lockwood (Case 26) and Dr. Parry, and Dr. Bramwell also stated that appendicitis followed tonsillitis.

The following two cases seem to point to the fact that there is more than a casual coincidence between the two conditions, and this should not be surprising when we remember the fact that the tonsil and the appendix both contain a great abundance of lymphoid tissue. In both my cases the closest questioning did not reveal any suspicions of previous appendicular trouble, nor was there evidence of such seen during the operation for the removal of the appendix.

Case 1.—Male, aged 30; two large flat tonsils were enucleated with scissors under cocaine anaesthesia; all went well until the fifth day, when he was taken with abdominal pain. On examination there was well-marked pain, tenderness, and rigidity in the right iliac fossa. He vomited once shortly after the onset of pain; the bowels had acted normally the previous evening. The pulse was 88, and the temperature 99.2°; the fauces were healthy. Eight hours after the onset of these symptoms I removed a swollen, inflamed appendix presenting no adhesions, no kinks, no stricture, and no concretion, but containing an abnormal amount of mucous secretion. Recovery was uninterrupted.

Case 2.—Female, aged 13; two large tonsils were removed by enucleation, and adenoids also curetted under general anaesthesia. Again all went well until the eighth day, when she was suddenly seized with extremely acute and severe appendicular symptoms; operation was delayed until thirty-six hours after the onset, as the parents would not give consent. I then removed a sloughing gangrenous appendix; the peritoneal cavity also contained a quantity of foul pus, necessitating draining. The patient ultimately recovered after a hard fight.

In both cases the patients were treated with mouth washes and formaldehyde tablets, both before and after operation, and in neither case was there any undue faucial sepsis. As the appendix and tonsil are more actively functional during the earlier time of life, it is clear that cases like those quoted above should be looked for among children and young adults.

Brian Metcalfe, M.R.C.S., L.R.C.P.,
Honorary Surgeon, Liskeard Cottage Hospital.
Liskeard.

EXOMPHALOS.

The mother, a primipara, aged 26, was quite well while carrying the child. The pelvic measurements were normal and the head could always be pressed into the pelvic brim. The urine was normal till two weeks before delivery, when it was tested for the last time. During labour the urine was solid with albumin, but this cleared up rapidly during the puerperium. The presentation was left occipito-anterior. The labour lasted eleven hours, and was concluded without instrumental interference. The child was full time, a well-developed male weighing 10 lb. The cord was once round the neck, but was not short, and was pulsating strongly at birth. The placenta was macroscopically normal. Protruding from the umbilicus into the base of the cord was a dark tumour, the size of an orange. The sac was dark and glistening, and coils of intestine could be seen. There was no other abnormality. The cord was ligatured and cut 4 in. from the hernia; cyanide gauze and a binder were applied. On the following day the child was taken by motor 30 miles to Plymouth, and was operated on twenty-eight hours after birth by Mr. G. F. Aldous at the South Devon Hospital. The sac was gangrenous and was excised; there were no adhesions, and the contents, which were healthy small intestine, were readily returned into the abdomen. The abdominal wall was sewn up in layers. The other viscera were not enlarged. The child stood the operation well; the bowels were open next day, and for a few days the outlook was promising. Death, however, occurred on the eighth day after operation from toxaemia. The frequency of this malformation is about 1 in 5,000 births, but usually the child is premature or some other abnormality exists. This child was full time and a particularly lusty infant. The condition is due to the persistent patency of the omphalo-intestinal canal, joining the yolk sac with the abdominal cavity. Normally this canal separates at the third month, and the loop of intestine till then present in the canal returns to the abdominal cavity. Treatment is by operation, but the mortality is high. Ahlfeld practises the repeated application, under anaesthesia, of compresses soaked in alcohol, retained by binders.

Daniel O. Twining.
Salcombe.

A NEW SPECIES OF TREPONEMA FOUND IN THE GENITAL SORES OF RABBITS.

Having been shown a rabbit with a peculiar papulous sore of the penis at the Laboratories of the John Howard McFadden Research Fund, I undertook the examination of the serum expressed from this lesion by the dark-ground illuminator; for it was expected that this method would lead to the detection of spirochaetes or similar motile micro-organisms. This disease of the rabbit has already been described by E. H. Ross, first in the British Medical Journal of December 14th, 1912, page 1653 (footnote), and subsequently shown by him on various occasions under the name of rabbit (natural) syphilis.

The rabbit I examined had been inoculated by means of a common sewing needle, which had been contaminated with some of the virus of a spontaneously diseased animal. I was informed that the new penile sore first appeared twenty-five days after this inoculation. On two occasions serum from this sore was taken by means of a sterile glass capillary tube. Both times fairly numerous moving spirochaetes were detected by means of one of Leitz's paraboloid condensors ($\frac{1}{12}$ oil-immersion, compensation eyepiece, No. 18).

The new spirochaete appears to belong to the "pallida" group. Its length is roughly that of one and a half times the diameter of a rabbit's erythrocyte. Its curves are very close, the movements are slow and rotatory, not lashing. The number of curls varies between five and eight. In transverse section it appears to be slightly oval—an oval transverse section is also apparent in *Sp. pallida*, *Sp. dentium*, and in the various relapsing fever blood spirochaetes. Another feature in common with *Treponema pallidum* is the springy, elastic, constitution of this rabbit species of parasite; it is well known that the blood spirochaetes appear to be softer, more yielding, this being shown by the peculiar lashing, trypanosome movements they exhibit and by the positions and contours seen in fixed and stained specimens. The ends taper off into a fine point; no terminal flagellar process was seen in these specimens. A few so-called dividing forms were noticed, and presented the well-known appearance of a spirochaete double the length of a normal individual, with a thinner portion or waist in between.

It is intended now to make silver-impregnated specimens of the deeper layers of the sores, so as to investigate the etiological significance of these interesting spirochaetes. I am informed that it was the finding of intracellular parasites, which develop into spirochaetes in these sores, which led to the examination of this rabbit disease. In specimens stained by Giemsa's method, which were subsequently obtained by Ross, these spirochaetes show up faintly a light purple colour, the staining reaction making them apparently indistinguishable from *Treponema pallidum*. They retain their regular curled, corkscrew shape in fixed specimens. The finding of this spirochaete is a most interesting factor in the experimental study of rabbit syphilis.

H. Bayon,
Research Bacteriologist (Leprosy),
Government of the Union of South Africa.

THE ETIOLOGY OF BERI-BERI.

In view of the increased attention to beri-beri and the resuscitation of the "rice theory" of its origin, founded on what appear to be wrongly interpreted experiments on the feeding of fowls, and especially in view of new legislation recommended on the supposed cause of the disease by consuming decorticated rice, it may be well to record an obvious fact which appears to have been lost sight of by recent workers.

After a period of close observation extending over fifteen years in Shanghai and other parts of China, beri-beri is found to be common in institutions, such as gaols, charitable institutions, and schools, where large numbers of persons live together but comparatively uncommon among the general population; practically no difference obtaining as regards the food supply, at any rate as regards the kind of rice consumed, which is invariably decorticated by the same process in China. If beri-beri were due to the loss of something in the outer covering of the rice grain, why should the disease show such a marked proclivity towards persons closely aggregated in large numbers? Such are the conditions which make for the spread of infection.

Isolation of the sick and ordinary disinfection of clothing, etc., have little or no effect on an outbreak of beri-beri, but after disinfestation of body vermin and sulphur fumigation of quarters to kill bugs, etc., there are strong reasons for thinking that prevention of the spread of beri-beri is immediate and effective. This points towards infection by external animal parasites.

It is interesting to note that practically all new workers on this elusive subject are first attracted by the "rice theory," especially in view of other forms of peripheral neuritis, such as ergotism, lathyrism, and perhaps pellagra, being attributed to the results of parasitic growths on seeds. This, in fact, appears to represent the first stage of research, which is almost invariably given up when the idea is found untenable as a result of fuller knowledge. But to accept the "rice theory" as final and to advise governments to legislate against rice with a view to prevention of beri-beri is to discourage further research until, of course, such legislation is found to be futile. Meanwhile, trade may be damaged and the habits of the people unnecessarily interfered with.

Shanghai. ARTHUR STANLEY, M.D.Lond., M.O.H.

British Medical Association.

CLINICAL AND SCIENTIFIC PROCEEDINGS.

METROPOLITAN COUNTIES BRANCH: CITY DIVISION.

DEMONSTRATION.

THE inaugural meeting of this session was held, under the chairmanship of Dr. HOBBS CRAMPTON, on October 17th, at the London Hospital, by invitation of Dr. J. H. SEQUEIRA, who showed a very interesting series of cases from the skin department, including, amongst others, examples of (1) leprosy, (2) keloid on scars of herpes, (3) hydroa gestationis, (4) extensive iodide eruption, (5) urticaria pigmentosa, and (6) multiple sarcoma of Kaposi. He showed also a series of cases illustrating different stages of syphilis, including primary chancre of lip, and secondary ulceration of tip of nose, annular eruption, necrosis of nasal bones, and the immediate and ultimate results of salvarsan treatment. Dr. Sequeira discussed each case in detail as shown, and answered questions as to treatment and other points. At the conclusion of the demonstration a vote of thanks to Dr. Sequeira was moved in appreciative terms by Dr. LESLIE DURNO, and also to the Hospital Committee, and seconded by Dr. T. RUSHBROOKE. Dr. SEQUEIRA, in acknowledging, referred to the pleasure which these meetings annually afforded him in welcoming the visit of the Division, and to the readiness with which the treasurer and committee always extended the opportunity in granting the use of the board-room.

Reports of Societies.

MEDICAL SOCIETY OF LONDON.

AT a meeting on October 27th, Sir DAVID FERRIER, President, in the chair, Sir JOHN BLAND-SUTTON introduced a discussion on the *Visceral complications met with in hysterectomy for fibroids*, and the best methods for dealing with them. This is published in full at p. 1130. Among subsequent speakers, Dr. A. E. GILES expressed a belief that there was no connexion between fibroids and valvular disease of the heart, and that in cases of heart lesions there was no very great risk in the operation itself. He had not met with glycosuria as frequently as had Sir John Bland-Sutton, and had not seen pulmonary embolism in this connexion. Mr. DOUGLAS DREW spoke of the rapid fall in pulse-rate which followed operation on a patient in whom mitral stenosis occurred in association with a large fibroid, and also of another case in which rapid enlargement of the thyroid gland occurred after hysterectomy for fibroids. He had injured the ureter in two cases. In one he fixed the ureter into the bladder; in the other he ligatured its proximal end. Both patients recovered satisfactorily. Mr. HERBERT WATERHOUSE agreed in the main with the conclusions of the opener of the discussion, but believed that pulmonary embolism was due to the overuse of large retractors rather than to buried sutures. He thought that the symptoms of myocardial failure and hyperthyroidism were both attributable to a poison absorbed from the degenerating fibroids. Injury to the ureter was avoidable if care were taken to make sure of its situation, by dissection if necessary. Dr. C. HUBERT ROBERTS favoured implantation of the ureter into the bladder when the former had been injured. Mr. HERBERT PATERSON disagreed with the view that buried sutures caused pulmonary embolism. When carcinoma of the colon complicated thyroids it should be removed first, and the treatment of the fibroids deferred till occasion should arise. Mr. A. E. JOHNSON thought that if the ureter was damaged, proper treatment was to engraft it into the bladder, and if contraction developed later, to open the bladder and improve the graft. Dr. R. A. GIBBONS had come to the conclusion that when uterine fibroids were complicated by Graves's disease, operation should not be performed unless the tumour actually threatened life. He agreed that the ureter was more often divided than was usually thought. Dr. M. HANDFIELD-JONES thought that pulmonary embolism should more properly be ascribed to thrombosis of the large veins about the tumour rather than to thrombosis of small veins such as might follow deep suturing.

GLASGOW MEDICO-CHIRURGICAL SOCIETY.

AT a meeting on October 17th, Mr. A. ERNEST MAYLARD, President, in the chair, Dr. JOHN M. COWAN reviewed the literature of *Auricular flutter*, dating it back to McWilliam's demonstration in 1887 that the application of an electrical stimulus to the auricle produced a premature systole starting at the point of stimulation, and set "the auricles into a rapid flutter, the rapidity of which largely depends upon the excitability of the auricular tissue and the strength of current employed. The movements are regular; they seem to consist of a series of contractions originating in the stimulated area and thence spreading over the rest of the tissue. The movement does not show any sign of inco-ordination; it looks like a rapid series of contraction waves passing over the auricular walls," and thus differed from auricular filtration, in which the auricular contractions were inco-ordinate, and much more frequent (500 to 600) and irregular. In 1905 Gibson and Ritchie reported a case, with polygraph tracings, of full heart-block, in which, with auricular contractions numbering 246 to 300, the ventricular beats numbered only 30; and in 1906 a similar case. Morrison, Hertz, and Goodhart also published similar tracings. In 1910 Jolly and Ritchie commenced investigations with the electrical polygraph, and, independently of others, isolated auricular fibrillation. They also examined the 1905 case of rapid auricular action, and found that the auricular waves were regular, numbering about 300, and diaphasic. They

suggested that this might be the same as McWilliam's auricular flutter. Further observations by Ritchie, Lewis, and others seemed to have established the identity of a new rhythm, and one that is not at all uncommon. Thirty cases had been published, and the speaker had found eight cases in his own collection, with polygraph tracings, and many more in which its occurrence seemed probable. A series of tracings illustrative of various types of auricular flutter was then demonstrated. Dr. Leonard Findlay, in a paper on the *Intestine as a pathway of infection to the tubercle bacillus*, with special reference to the part played by enteritis, detailed a series of experiments by himself, and drew from them the following conclusions: (1) Healthy rabbits can be infected by the ingestion of large amounts of bovine tubercle bacilli. (2) The bacilli can pass through the apparrently intact mucous membrane and reach the mesenteric glands within a period of six days; this, however, does not frequently happen. (3) When infection occurs the intestine is invariably the seat of lesions, and thus tuberculosis of any organ, other than the intestine, is always a secondary infection when the bacilli have entered by the intestinal route. (4) Catarrh of the intestine does not favour the passage of the tubercle bacilli through the wall, but allows of a more constant and also of an earlier and more widespread infection of the bowel, and in this way facilitates dissemination. (5) Healthy rabbits can be infected by the ingestion of large amounts of the human tubercle bacillus. (6) Rabbits just recovered from intestinal catarrh develop tuberculosis more easily and much sooner after the ingestion of human tubercle bacillus. (7) With the human type of organism a local lesion, though always present, may be slight in comparison with the diseased foci in the mesenteric glands and lungs. (8) In digestion experiments with the human type of bacillus it would seem possible for the local intestinal lesion to heal and all trace of the portal of entry to be lost. (9) Apparently the best means of combating the spread of bovine infection in children, so long as removal of the source is not tackled, is the avoidance of everything likely to cause intestinal catarrh and the use of sterilized milk.

BRIGHTON AND SUSSEX MEDICO-CHIRURGICAL SOCIETY.

At a meeting on October 2nd Dr. L. A. Parry, in a paper dealing with the *Possibility of premature interment*, held that, although there was only one absolutely incontrovertible sign of death—namely, putrefaction—yet a combination of many well-known signs of death, even in the absence of putrefaction, made the diagnosis of death absolutely sure. One could assure those who had doubts on the subject that, provided various signs of death were very carefully verified, no doubt could remain in a trained observer's mind as to the absolute certainty of the absence of life, but he pointed out how seldom in this country careful observation was made. In the discussion which followed Dr. R. J. Ryle emphasized the importance of flaccidity and loss of tension in the eyes, and Mr. H. H. Taylor spoke of ophthalmoscopic examination as valuable Loss of circulation in the retinal vessels immediately followed death. Dr. H. M. Galt pointed out that in this country the great safeguard was the length of time ensuing before burial; with reasonable case premature interment should be impossible. Dr. R. J. Ryle, in some notes on *Habitual inebriety*, agreed that it was rather an evidence of an unsound mind than a cause of it, but pointed out that this view was not correctly put in the common words, "Drink is a disease"; these obliterated the distinction between the voluntary actions of the inebriate and the involuntary actions of, for instance, a subject of epilepsy. As to the innumerable secret of advertised remedies, some cures might be found from all or most of them; but with regard to all of them, as also with regard to hypodermic injections of atropine and strychnine, it was probable that the treatment owed its efficacy to mental and not to pharmaceutical factors. The most important element in treatment in every case and under all methods was the personal impression made and influence gained by the medical attendant and its use in gradually encouraging and aiding the restoration of the patient's own will. The saying of Professor William James, that "The only remedy for dipsomania is religiomania," indicated by an exaggeration the same truth. The following were among the exhibits:—Dr. H. N. Fletcher: (1) A case of *Malignant disease of the mamma* in a middle-aged man; (2) a specimen of *Tuberculous kidney*, which had simulated renal colic by occurrence of attacks of intense pain and absence on repeated examination of tubercle bacilli in the urine. Dr. C. F. Bailey: A case of *Actinomycosis* of the cheek entirely cured by use of *x* rays after failure of large doses of potassium iodide. Dr. W. Broadbent: A specimen of *Cerebral haemorrhage in a child* following embolism during the course of ulcerative endocarditis.

NOTTINGHAM MEDICO-CHIRURGICAL SOCIETY.

At a meeting on October 15th, Mr. R. G. Hogarth, President, in the chair, Mr. H. J. Gauvain gave an account of the views framed by him as the result of his experience as superintendent of the Cripples' Hospital at Alton on the subject of the conservative measures in the treatment of surgical tuberculosis. He laid great stress on the fact that tuberculous disease is a general disease with local manifestations, and therefore treatment to be successful must be general as well as local. As regards the general treatment, these cases were best treated in a special hospital which was situated in a locality climatically especially suitable to the cure of tuberculosis. If a marine spot were selected for the special hospital, it should be on the beach with a wide foreshore and facing the prevailing winds. The subsoil should be chalk or sand and stone. Of course suitable hygienic arrangements were essential, and the diet should be good, plain, ordinary food. Given suitable general and mechanical treatment, the use of tuberculin was limited, and should usually not be advocated. Among the adjuvant methods of treatment, Bier's treatment, *x* rays, and the "sun-treatment" as recommended by Rollier, were all useful in special cases. Heliotherapeutic measures had been very successfully employed at Alton. An attempt was now being made there to cure the worst cases of angular curvature by means of a system of extension and counter-extension, and encouraging results had already been obtained. After the deformity was corrected, the parts were immobilized in a plaster casing for the requisite period of time, this varying with individual cases. Before applying the plaster jacket on a suspended patient it was desirable to tilt the patient gradually to the vertical position to avoid syncope. When the plaster jacket was discarded a plaster positive of the patient's trunk was made, and on this a celluloid jacket was manufactured. In order to overcome the inflammable properties of celluloid, celluloid in solution in acetone was denitrated by the addition of a supersaturated solution of calcium chloride. The resulting mixture when dry was non-inflammable, but preserved the other essential physical qualities of ordinary celluloid. The solution was painted on to strips of muslin on the cast, and after drying a perfect celluloid casing was obtained and makes an ideal jacket. In dealing with abscesses by aspiration, the needle should be inserted as far from the abscess as possible and through a wide extent of healthy tissue. Thick, caseous material should first be liquefied by injecting a solution of thymol 1 part, camphor 2 parts, and ether 3 parts. When the pus was fluid and the abscess thin-walled it was the practice at Alton to inject a 10 per cent. solution of sterile iodoform in ether. This promoted sclerosis and fibrosis in the walls. It was of great importance to avoid sinus formation, as they were the most serious complications associated with tuberculous arthritis. The paper was accompanied by a lantern demonstration which included some cinematographic films.

HARVEIAN SOCIETY.

At a meeting on October 16th, Dr. Leonard Guthrie, President, in the chair, the following were among the exhibits:—Dr. G. A. Sutherland: A child three years after the removal of the left kidney for sarcoma by Mr. Burghard; for two years there was an apparent cure, but recurrence then took place. Mr. Gauntlett: A case of ulnar paralysis following the separation of the lower

epiphysis of the humerus. The nerve had been freed from the callus by which it was surrounded. Dr. DUNCAN FITZWILLIAMS: (1) A case in which a lipoma had been removed from under the parietal pleura; (2) a fibro-lipoma from under the deltoid; it had been attached to the capsule of the shoulder-joint.

Reviews.

OPHTHALMOLOGY.

THE second volume of Dr. M. L. FOSTER'S translation of ROEMER'S *Textbook of Ophthalmology*[1] appeared rather less than a year after the first volume, which impressed us favourably. It includes diseases of the eyelids, injuries of the eye, diseases of the vitreous, sclera, lacrymal organs, and orbit, glaucoma, and muscle errors. It differs from most ophthalmic textbooks, since it is in the form of lectures, and this goes far to account for its bulk. Although various theories and methods of treatment are described, as a rule Roemer lays down what he considers to be the correct course without discussing the views of others in much detail. A thorough explanation of the various theories which have been adduced to account for sympathetic ophthalmitis is given. In sympathetic ophthalmitis the Leber-Deutschmann theory of migration and the modified cilio-neural theory of Schmidt-Rimpler are discarded as unsatisfactory, as they fail to account for the facts of the disease. The theory the author advocates is that the disease is a specific metastasis, that it arises haematogenously, and is due to a specific metastasis from the eye first affected. This, he holds, has received adequate experimental support and affords a natural explanation of all the clinical symptoms. In describing the operations for glaucoma, iridectomy is given the premier place, then cyclodialysis, and finally sclerotomy, but no mention is made of trephining nor of Herbert's method of sclerotomy. A good deal of attention is bestowed upon the changes in the fluid contents of the normal eye. The final chapter of the volume deals with muscular anomalies. The third volume contains a chapter on the pupil and its normal and abnormal reactions, in which considerable attention is given to the action of the pupil in certain diseases of the central nervous system. The chapter or lecture on the extraocular muscles contains a full discussion of the diagnostic importance of paresis of the various muscles, and of the effects of injury, and such diseases as herpes ophthalmica. Next follows an account of the affections of the choroid, retina, and optic nerve. Considerable attention is given to errors of refraction and presbyopia. The account of colour vision is based on the Hering theory, and the author is apparently one of the few who still consider this theory either correct or adequate to explain the subject; the only tests mentioned for the determination of colour vision is the Holmgren, Stilling's tablets and Nagel's test. This is unusual in a German book, for it is so well recognized in that country what unreliable a test the former is. There is an appendix, written by Dr. M. L. Foster, on asthenopia and its causes. The three volumes which comprise this book treat very thoroughly of the subject of ophthalmology. The style is that of a teacher speaking to the students, and the matter is clearly and explicitly put and generally sound and correct. The book occupies a unique place in ophthalmic literature.

We welcome the seventh edition of *Diseases of the Eye*,[2] by G. E. DE SCHWEINITZ of Philadelphia. The first 200 pages contain a description of the examination of the eye, and a discussion of optics and refraction. Some of the illustrations are anything but artistic, especially those dealing with the examination of the eye. Figures 26, 27, and 28 might well give place to something a little more worthy of the book, and the passages in which colour blindness and its detection are dealt with might be rewritten with advantage. The chapter on glaucoma is good, and the modern operations of Lagrange, Elliot, and Herbert are well described. There is an article on the injurious effects of the arylarsenates; the amblyopia which has in some cases followed the use of soamin, orsudan, etc., Dr. de Schweinitz considers due to the aniline in these compounds and not to the arsenic, and he definitely states that salvarsan has no injurious effect on the optic nerve—a matter which we had supposed to be as yet unsettled. Almost all recent work finds a place in this volume, which is one of the larger textbooks, containing as it does nearly 1,000 pages. The book is too well known not to be familiar to most ophthalmic surgeons, and it justly occupies one of the first places in textbooks of eye diseases.

Surgery of the Eye,[3] a book of some 500 pages recently brought out by Drs. ERVIN TÖRÖK and GERALD H. GROUT, both of New York, is profusely illustrated with 509 diagrams of which 101 are in colour as well as two coloured plates, and the whole get up of the book is excellent. Detailed explanations are given of such operations as are described together with their indications. The introduction is written by Dr. Arnold Knapp, and in the first chapter—dealing with the general preparation and surroundings required for ophthalmic operations—nothing is lacking, so that a beginner will find all details for the performance of surgical work on the eye. Although the book is of fair size no mention is made of many of the operations which are more or less in general use. Good useful methods are given for dealing with every ordinary condition likely to be met with, and some of the newer operations are well illustrated and described. It is an advantage rather than otherwise for a beginner not to be confused with too many alternative ways, and those that are given here are really useful methods of dealing with the various conditions for which they were designed. The book can be recommended as an up-to-date volume on the surgery of the eye.

In Dr. KARGER'S work on the development of the spherical refraction of the human eye,[4] the whole question of the development of the three conditions of refraction—hypermetropia, emetropia, and myopia—is discussed at great length. The three conditions must, he says, be considered together, because they are not essentially different. Both long and short sight depend upon a lack of the correct balance between the corneal curvature and the length of the eye. The corneal refractive power varies within fairly wide limits, but corneae which are more or less curved than the average may be and are found in emmetropic eyes. Similarly a strongly curved highly refractive cornea may be found in a hypermetropic eye, and a cornea flatter than the average may be associated with myopia. Generally speaking, however, the hypermetropic eye is furnished with a flat cornea; myopic eyes have in most cases a sharply curved cornea. The average variation is about half a dioptre, but in exceptional cases it is much more. These two factors—axial length and corneal curvature—afford, the author contends, the necessary variable factors for natural selection and heredity to act upon; either of the two may be inherited from either parent. Among aboriginal tribes myopic individuals would, he argues, be at a serious disadvantage, and hence natural selection would tend to eliminate this form of refraction, and accordingly short sight is rare among savage tribes. Myopia is, on the other hand, not such a serious disadvantage among cultured races, and in some callings may even be an advantage. He concludes therefore that the higher the culture the greater will be the percentage of myopic individuals. In Dr. Steiger's opinion heredity and natural selection are the all-important factors in determining whether the refraction of an individual shall be hypermetropic, emmetropic, or myopic. He regards myopia as a single entity, and disapproves of any division

[1] *Textbook of Ophthalmology, in the form of Clinical Lectures.* By Dr. Paul Roemer, Professor of Ophthalmology at Greifswald. Translated by Dr. M. L. Foster. Volumes ii and iii. London: Rebman, Limited. 1913. (Roy. 8vo, pp. 277-571 and 572-892. 10s. 6d. net each volume.)

[2] *Diseases of the Eye: A Handbook of Ophthalmic Practice for Students and Practitioners.* By G. E. de Schweinitz, A.M., M.D., Professor of Ophthalmology in the University of Pennsylvania, Seventh edition. Philadelphia and London: W. B. Saunders Company. 1913. (Med. 8vo, pp. 980; 360 illustrations; 7 chromo-lithographic plates. 21s. net.)

[3] *Surgery of the Eye.* By Ervin Török, M.D., and Gerald H. Grout, M.D. London: Baillière, Tindall and Cox. 1913. (Roy. 8vo, pp. 515; 509 illustrations; 2 plates. 18s. net.)

[4] *Die Entstehung der sphärischen Refraktionen des menschlichen Auges.* Von Dr. med. Adolph Steiger. Berlin: S. Karger. 1913. (8. roy. 8vo, pp. 380; 15 figs. Mk. 18 unbound, Mk. 20 bound.)

into varieties, such as inherited myopia, school myopia, and pernicious myopia. He points out that two sisters may have myopia which they have inherited from myopic forbears, and yet one may have a normal fundus and the other serious changes in the choroid, and it may even happen that these changes are present in the sister who has the lower degree of myopia than the other. There is, he holds, no such thing as school myopia; the disease often advances with the increased age of the children, but this has nothing to do with the work the scholars perform. He severely criticizes the deductions which have been drawn from enormous masses of figures on the ground that statistics have been compiled upon such varying plans that they are useless for purposes of comparison. The results of those ophthalmologists who have examined schools without using a mydriatic are, he thinks, worthless. We do not think that anything is to be gained by attempting to avoid drawing a distinction between ordinary low grade stationary myopia and progressive myopia. One child inherits a faulty balance between axial length and corneal curvature determining a stationary myopia, which ceases when growth has ceased, while another child inherits a sclera which fails to withstand the strains imposed upon it and progressively elongates, whether he studies in school and college or works in the fields; high grade myopia, with fundus changes, is at least as common among the labouring classes as among the professional, and is by no means unknown among such uncultivated races as the Bedwân. There is justification for the author's refusal to entertain the theory advanced by Cohn that school work may be a cause of myopia. English boys often work as hard at books as German boys, yet myopia is quite the exception among English professional men, while in Germany it reaches 50 per cent. Half the German doctors, it is said, are myopic; we doubt whether even one-tenth of English doctors are so afflicted. If these statements be correct, it seems obvious that we have to do with a question of racial proclivity. Dr. Steiger's book, as a whole, is open to the criticism that all he has to say could have been condensed into 100 pages, and we have over 500. In some places his diction is so lacking in clearness that we feel that we may not have interpreted him correctly; 441 references are given at the end of the book, and by far the larger part of the work is devoted to the views of ophthalmologists, some of high others of little repute. The statistics compiled by the London County Council's medical advisers, Bishop Harman and others, are not even mentioned. The book is tedious, and the author adds little to our knowledge of the subject.

Dr. C. Adam, of Berlin, has produced an excellent atlas[5] showing the normal and pathological appearances of the retina, in coloured plates and with a magnification of about ten diameters. The pictures, drawn by Landsberg, are first rate, and have been very well reproduced and printed, rarely leaving anything to be desired. The greatest excellence of Dr. Adam's book, however, lies in the ample notes and explanations with which each picture is expounded, and in the pages of text with which the different series of retinal pictures are each introduced. Beginning with a short and clear account of the technique of ophthalmoscopy, and the way in which to correct the faulty methods that beginners are likely to employ, the author goes on to discuss the normal papilla and fundus, and the etiology and pathology of optic atrophy, optic neuritis, and the diseases of the retinal vessels, the retina, and the choroid. In each case the normal and the morbid anatomy of the part are given, in simple terms but very thoroughly, and always the main object of the book is kept in view—the use of the ophthalmoscope as an aid to diagnosis. The text is not burdened with detail, but clearly written and readily intelligible. The book is admirably got up and printed, and may be warmly recommended, not only to specialists in diseases of the eyes, but to all practitioners and advanced students who are not strangers to the use of the ophthalmoscope.

[5] *Ophthalmoskopische Diagnostik, an der Hand typischer Augenhintergrundsbilder. Mit besonderer Berücksichtigung der für die Allgemein-Medizin wichtigen Fälle für Aerzte und Studierende.* Von Priv.-Doz Dr. C. Adam. Berlin and Vienna: Urban and Schwarzenberg. 1912. (Imp. 8vo; 86 illustrations, 41 tables, 18 figures.)

MEDICAL GYMNASTICS AND ORTHOPAEDICS.

The treatise on medical gymnastics of Dr. Anders Wide,[6] which was published in Stockholm in 1896, had many readers in Scandinavian lands and was subsequently translated into the three chief European tongues. The French translation, by Dr. G. Falk, of the second edition which has just appeared, will no doubt also have a large circle of readers. Although this work is largely founded on the teaching of Ling, the author has found it convenient to adopt the nomenclature based on that used by Zander in his mechanical exercises, which Dr. Wide also recommends with the reservation that they should be combined with, but can never take the place of, massage. Nearly a century ago Ling divided gymnastics into four principal branches, namely pedagogic, military, medical and aesthetic, but although these four groups differ in the objects aimed at, the means employed have much in common.

There are three main divisions of medical gymnastics—the active, the passive, and the group of movements against resistance. Part I of the book is devoted to detailed description and discussion of the various movements and exercises, while Part II is occupied by a consideration of their application to different diseases. In the first part the descriptions and illustrations are necessarily familiar to all readers of books on Swedish gymnastics, and are adequate and clear. In the second part the author, after defining the extent of the usefulness of the method, warns us against some teachers of Swedish gymnastics abroad, who have applied it as the sole means of treating all diseases, even infectious fevers and malignant tumours. Then follow sections on the treatment of the circulatory, respiratory, digestive, genito-urinary, nervous and muscular systems; on constitutional and intoxication diseases and on those of the bones and joints. Finally, some fifty pages are devoted to consideration of the diagnosis and treatment of scoliosis. This subject, probably owing to want of space, is dealt with in a rather sketchy manner, and some causes of scoliosis, for example, anterior poliomyelitis, are not mentioned. Should a third edition of this popular treatise be called for, the author would be well advised to leave out discourses on etiology, pathology, and diagnosis of scoliosis, and utilize the space saved by amplifying the descriptions of manipulations and exercises and increasing the number of illustrations of them, for there is no deformity in which the selection of appropriate exercises calls for more discretion if good results are to be attained. The book has no index.

SURGERY FOR DENTAL STUDENTS.

In a handbook entitled *Surgery for Dental Students*,[7] Mr. Arthur Underwood has tried to define the surgical knowledge requisite for the examinations for the dental licence. Ten years' experience as examiner on the English Dental Board, and an official visit of inspection to all the existing British examinations, should be an efficient preparation for such a work. The authors also thought that a clearly written elementary treatise might not be unwelcome to the general student as an introduction to the study of surgery. This we think unfortunate, since it seems to have induced the authors to write at least as much for the general as for the dental student, and opportunities of explaining the text by reference to oral conditions have not been as much utilized as they might. For example, more is said on the subject of facial paralysis than is ever required of the dental student, and less on the oral manifestations of syphilis than he should know. In discussing chronic pharyngitis, it would have been well to point out that it frequently depends on a septic mouth, and in connexion with chronic inflammation of bone pyorrhoea alveolaris should have been mentioned. It is said that Hutchinson's teeth may be caused by some other affection than syphilis. We

[6] *Manuel de gymnastique médical et orthopédique Suedoise.* Par le Docteur A. Wide, Professeur à l'Université de Stockholm, Directeur de l'Institut gymnastique orthopédique. Traduit par le Docteur G. Falk de l'Université de Stockholm. Bruxelles: A. de Boeck. Paris: F. Alcan. 1913. (Roy. octavo, pp. 318; 100 figures, and 1 plate. 10 Fr.).

[7] *A Handbook of Surgery intended for Dental and Junior Medical Students.* By Arthur S. Underwood, M.R.C.S.Eng., L.D.S.Eng., late Examiner, Royal College of Surgeons, England; and Bayford Underwood, M.B., B.S.Lond., M.R.C.S Eng., L.R.C.P. London: John Bale, Sons and Danielsson, Ltd. 1912. (Fcap. 8vo, pp. 252; 19 illustrations. 3s. 6d. net.)

should like evidence that this occurs even rarely, for the point is one of great interest. Like all Mr. Underwood's work, the book is written in an interesting and clear style. The chapters on pathology are especially good reading, and great care has been expended in sorting out the information given throughout the book. The dental student who masters its contents, and can apply the knowledge to his speciality, should not only satisfy the requirements of any dental examining board, but also give a good account of himself in daily practice.

Messrs. Mills and Humphreys have also published a work on *Surgery for Dental Students*.[8] They have written solely for dental students and practitioners, and claim to meet all the requirements of the new curriculum of the Royal College of Surgeons of England and of the various licensing bodies both here and in America. The authors deal with surgical pathology in general and with diseases and injuries of the mouth and adjacent parts in particular. The work is open to the same criticism as that by the Messrs. Underwood—full advantage has not been taken of opportunities of illustrating general pathology by mouth conditions, and the influence of dental sepsis appears not to be fully appreciated. When we read that "chronic inflammation (of bone) is usually due to tuberculosis or syphilis, but occasionally to chronic irritation," we are inclined to suggest that in the jaw bones the reverse is the fact, that the chronic irritation of dental sepsis is the common causal factor, and tubercle and syphilis uncommon. We note that while Mr. Underwood would avoid alveolar drainage in the treatment of chronic antral suppuration at all costs, Messrs. Mills and Humphreys find it the most satisfactory method in the majority of cases. The book is well and clearly written, and includes all, not excepting "foot and mouth disease," that the dental practitioner is likely to meet with. It is unlikely that any dental examining board will require more of the candidate than is contained in its pages.

DYSENTERY.

Dysenteries: their Differentiation and Treatment,[9] a small book by Professor Leonard Rogers, deserves very careful study. The author has given special attention to the subject, and has from time to time advocated strongly the ipecacuanha treatment for the amoebic variety of the disease. Still more lately, applying Vedder's experimental work on emetine, he has opened up a very great improvement in the therapeutics of the condition, and has done inestimable service in advancing strong clinical evidence of its efficacy. Protozoal diseases present special difficulties in treatment, and amoebic dysentery is no exception to this rule. The expectation that a few doses of emetine would always cure dysentery, if ever entertained, is now being proved by experience to be too sanguine; it would appear that a fairly prolonged course may be necessary, and that even then relapses may occur. We would strongly advise those who have had little experience of dysentery to read this book. It is very simply written, and gives a very good account of the subject, including not only the amoebic, but also the bacillary and other forms of the disease. The last chapter of the work is devoted to sprue.

NOTES ON BOOKS.

Mr. C. Strickland, medical entomologist, Federated Malay States, has prepared a *Short Key to the Identification of the Anopheline Mosquitos of Malaya* for the use of medical officers and others. The key is concerned with fifteen species, which, in the author's opinion, comprise all those of importance for medical purposes. Attention is first directed to one part of the mosquito's anatomy and then to other parts, and it is believed that, with the aid of the diagrams given, the identification will be comparatively easy. The pamphlet, which is published by the Government Printing Office, Kuala Lumpur, will undoubtedly prove useful.

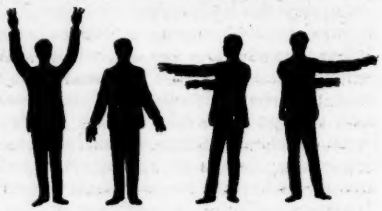
[8] *A Textbook of Surgery for Dental Students.* By G. Percivall Mills, M.B., B.S.Lond., F.R.C.S., Surgeon to the Royal Orthopaedic and Spinal Hospital, Birmingham, and Humphrey Humphreys, M.B., Ch.B., B.D.S.Birm., L.D.S.Eng., Demonstrator in Dental Surgery, Birmingham Dental Hospital. London: Edward Arnold. 1913. (Demy 8vo, pp. 352; 57 figs. 12s. 6d. net.)

[9] *Dysenteries: their Differentiation and Treatment.* By Leonard Rogers, M.D., F.R.C.P., B.S., F.R.C.S., C.I.E., I.M.S., Physician to the Isolation Ward (Cholera and Dysentery), Medical College Hospital, and Professor of Pathology, Medical College, Calcutta. London: Oxford Medical Publications; Henry Frowde and Hodder and Stoughton. 1913. (Demy 8vo, pp. 346; 10 plates, 2 charts, 3 diagrams. 10s. 6d. net.)

MEDICAL AND SURGICAL APPLIANCES.

The "Signal" Vision Test Type.

Mr. N. Bishop Harman, M.B., F.R.C.S. (Ophthalmi: Surgeon, Belgrave Hospital for Children, London), writesc This test type has for its signs the block E after the fashion of Hirschberg's test types; but only one sign is given for each grade of the test. The signs are mounted on turntables, so that their positions can be varied indefinitely. In one model the whole of the turntables are geared together by a simple pulley arrangement, so that the movement of a milled head at the front bottom edge of the board causes all the signs to turn in different directions. In the simpler model the turntables have knobs projecting behind the board by which they are moved as required. This test is of particular value where it is desired to make a subjective test of vision with a minimum of error due to the "mental factor"—that is, in testing seamen, railwaymen, or other employees whose vision is a matter of importance. The test requires no knowledge of letters, only the minimum power of imitation. The test has already been in use for some time for testing school children with excellent results. As a school-vision test the children should be taught to regard the E sign as three fingers, turned up, down, to the right or left. The teacher should draw these signs on the class blackboard in large size and teach the whole class "signal drill," showing them how to stretch out three fingers of both hands in the position of the fingers of the E sign pointed to. After this drill vision-testing will be quick and sure. The test should be hung in full daylight (not sunshine), a monitor should stand beside the test holding a sheet of dull-coloured card, so as to cover all the signs below the one the child is looking at. The child should stand toeing a chalk line drawn at the distance of 16 ft. 6 in. from the test. The examiner sitting slightly behind the child will see both the sign and the signal of the child. The signs should be altered in position for each child by the monitor turning the milled head or one or two of the discs. Except that the test will get dirty, there is no objection to letting it hang in the class room, for it cannot be learnt by heart. On the back of each test card there is gummed a printed sheet with the instructions as above and a figure showing the manner of signalling with the arms and fingers. The test is made in excellent fashion by Messrs. Curry and Paxton, Great Portland Street, London, W.



SANITARY AND DOMESTIC APPLIANCES.

Irish Frieze.

Three specimens of Irish frieze that have reached us are samples of the fabrics now being used by Messrs. M'Alery, of Belfast (27, Rosemary Street) in the making of ulster coats. They present variations in colour and slight differences in weight, but all alike offer, even when stretched, marked resistance to the passage of water, as also to that of air under pressure. Such cloth, even as it stands, would offer the wearer a high degree of protection both against cold wind and driving rain, and when its resisting power is further increased by lining it with tweed—as is the practice of Messrs. M'Alery—the resulting garment should be of a highly satisfactory kind from the point of view of those who wish to take all reasonable precautions against chills. Messrs. M'Alery have had long experience in the building of winter overcoats, and the cloths from which the samples in question were derived seem well calculated to maintain their reputation. The ulsters are made with deep collars and wind-proof cuffs, and the firm claims that they will wear for ten years. Patterns can be obtained on application.

LONDON SCHOOL OF TROPICAL MEDICINE.

Annual Dinner.

The annual dinner of the London School of Tropical Medicine was held at Princes Restaurant on Friday, October 24th, Dr. F. M. Sandwith in the chair. Among those present were Mr. Austen Chamberlain, Mr. Percival A. Nairne (Chairman of the Seamen's Hospital Society), Sir J. West Ridgeway, Viscount Milner, General Sir Reginald Talbot, Sir Patrick Manson, Sir Francis Lovell, Sir William Leishman, Sir Charles Pardey Lukis, Sir John Rose Bradford, Sir William Bennett, Sir R. Burnet, Sir Richard Havelock Charles, Surgeon-General A. W. May, Mr. H. J. Read (of the Colonial Office), Sir John Anderson, Surgeon-General Sir A. M. Branfoot, Sir E. W. Birch, Commander G. Hodgkinson, R.N., and Sir William Treacher.

Mr. Austen Chamberlain, the principal guest, proposed the toast of "The London School of Tropical Medicine." He said he supposed it was entrusted to him because it had recently been his good fortune to be connected from the outside rather intimately with the fortunes of the school. He was glad of the opportunity which was afforded him of saying what had been done with the funds which had been collected. He accepted the invitation of Mr. Lewis Harcourt to take the chairmanship of the committee to raise funds for the school for several reasons. The first reason, he need have no hesitation in saying, was a filial one. It was on the ground of his father's connexion with the school that Mr. Harcourt appealed to him, and it was primarily on account of his father's connexion with the school that he accepted the chairmanship of the committee. But that was not the only reason. The study of tropical medicine had in the past twenty or twenty-five years made giant strides, and in its advance our countrymen had taken a leading part. As the possessors of the greatest tropical and subtropical empire existing in the world Britons had a special obligation to the subject races of whose well-being they were the guardians. They had a like obligation to the young men of their own race who went out to other climes, leaving easier and certainly safer paths at home, carrying with them the honour of their country, doing her work, spreading her civilization, and increasing her reputation. Their country owed to them that at least she should do everything possible to minimize the risks they naturally had to run, and should show her appreciation of their work by striving to secure thorough research into the conditions of health and the cause of illness to which their labours rendered them particularly exposed. It was a matter of national honour and national pride that in so beneficial a movement the men who had taken so large a part in its initiation should be encouraged to carry on the work, and that this country should stand in the forefront of the pioneers and of the new learning which was being acquired. For the promotion of these ends they had organized an effort to collect a sum of £100,000, and they had succeeded in getting the not inconsiderable sum of over £70,000. Acting on the advice of the committee of management of the School of Tropical Medicine and of the head of the Seamen's Hospital, they desired in the first place to make an absolutely necessary extension of the buildings of the school. To that they had devoted £15,000; not an undue proportion of the fund to sink in bricks and mortar. The second object was to provide a fund for research. That they had been able to carry out by the kindness of Sir William Bennett in allocating to this purpose the legacy of £10,000 which the late Lord Wandsworth entrusted to his discretion. This object had been further served by strengthening the staff of the school. The third object of the committee and the subscribers was to obtain a moderate endowment for the school, which should place it beyond immediate want and prevent its being always hampered by lack of funds. For that purpose a sum which would produce an annual income to the school of about £1,400 had already been allocated, and additional funds had been obtained which would allow of another £400 a year. The last of the objects was one of some delicacy. Men sometimes returned from the tropics suffering from diseases peculiar to those climes, but with means insufficient to secure the attention of those with special knowledge of tropical medicine, which was confined to very few. They were anxious, therefore, to make some provision for cases of that kind, and owing to the help received from the authorities at the Seamen's Hospital they had been able to make arrangements for such patients. The large measure of success which had attended the appeal would never have been obtained but for the hearty co-operation of numberless persons. He had been touched by letters he had received from many tropical dependencies of the Crown, in which the writers sent small contributions. He took that opportunity of asking the gratitude of the company, and of recording his own in particular, to the City Committee. He was anxious to secure an adequate response from those great industries which depended for their profits on tropical and subtropical trade. Thanks to the London Chamber of Commerce in the first instance, and to the City Committee formed under their auspices in the second, the response from companies had exceeded his most sanguine expectations. From the great railway companies, the great banks, the great shipping companies, down to the humblest of the companies operating in our tropical dependencies, there were representatives in the list of subscriptions. It was unnecessary for him there to dwell upon the appreciation felt for work of the school by those who most immediately benefited thereby, and who were best able to judge of the results achieved. But he might give an instance showing how cordial was the response which was being made to the invitation issued to some of those tropical colonies by the Colonial Secretary for a contribution to their funds. When it was gently suggested by the Colonial Office to the Government of the Federated Malay States that in view of the importance of the school to them they might be willing to vote £500 of public money to the fund, a telegram was received in reply stating that in view of the importance of the work to them the unofficial members of the Council suggested that a grant of £5,000 should be made. Those who subscribed in this country need not therefore think that they subscribed to a work for an ungrateful few who could not appreciate what the school was doing. Great as had been the advance which tropical medicine had made in the last few years, he believed they had only scratched the soil so far, and that was a most hopeful and encouraging sign. The discoveries made were not final or conclusive; each opened up a new vista and new possibilities, and they were changing the whole of our mental attitude towards the problems of tropical disease, health, settlement, and development. Diseases which were once thought to be the inevitable concomitant of that development were now seen to be preventable. He hoped that if they had not done all that they tried to do, they had yet put the school on a sound footing and enabled it to pursue its work unhampered by daily anxiety as to means, and to bring its equipment and staff up to date.

The Chairman, in reply, bore testimony to the great efforts of Mr. Austen Chamberlain for the success of the fund, and said part of the scheme of endowment was the establishment of special beds, and it was intended that one of the wards in the hospital should bear the name of the "Chamberlain Ward." He was glad to be able to report that the school was in a fairly flourishing condition. They had the largest class of students they had ever had, and the greatest number of resident students.

Mr. James Cantlie and Dr. W. T. Prout, in the name of the subscribers, presented to Sir Patrick Manson two portraits of himself, in recognition of his work in connexion with the school. One of these portraits is to be hung in the school, the other is intended for Sir Patrick Manson's family.

Mr. Austen Chamberlain, in unveiling the portraits, said that it was owing to the inspiration of Sir Patrick Manson that the London and Liverpool Schools of Tropical Medicine sprang into existence almost at the same moment. Sir Patrick's friends asked him to accept the portraits as a testimony of their gratitude to him for his help and of their affection for him. They wished to recognize the honour he had done his country, and the splendid services he had rendered to medicine, to the empire, and to mankind.

Sir Patrick Manson having suitably acknowledged the gifts, the Chairman proposed the health of the guests, to which Sir John Anderson replied.

Viscount MILNER submitted the toast of "The Chairman," who acknowledged the compliment.

During the evening the CHAIRMAN announced that, in response to a telegram which he had sent to Mr. Joseph Chamberlain on behalf of those present, he had received the following reply: "Thanks for your kind message. I wish you a pleasant dinner, and I congratulate you on the progress made. J. Chamberlain."

Extensions of the School.

A short account of the extensions of the London School of Tropical Medicine was given in the JOURNAL of May 10th. As the result of a more recent visit we are able to supply some further particulars. A new wing has been added to the school. The new general laboratory provides accommodation for some 70 workers, and, in case of need, room can be found for as many as 120. Separate laboratory accommodation on a liberal scale is provided for tropical hygiene and sanitation, and for the breeding of disease-carrying insects. There is also a preparation room. In the middle is the director's office, so placed that he can overlook the different compartments on each side. Each table has a light to itself, in such a position as to afford the best illumination. These laboratories, which are on the ground floor of the new wing, are additions to the existing helminthological, protozoological, and entomological laboratories, and are said to be the most completely equipped of their kind in the kingdom.

Besides the extension of the working part of the school, additional accommodation has been provided for resident students. When the school was established it was felt by the founders that it would be a great convenience for students to live within its precincts, in constant touch with the laboratories and museums, the library, and the wards of the hospital. This arrangement obviously saves the needless waste of time caused by wearisome journeys to and from town every day. To this end, as a beginning, accommodation was provided for some twelve students. Unfortunately, the increasing demands for accommodation for teaching, especially in the special departments, made it necessary that some of the rooms built for residential purposes should be absorbed into the school. In this way the accommodation available for resident students fell in a short time from twelve to seven. This number of rooms was found to be too small, and on many occasions students wishing to live on the premises had to be refused for lack of accommodation. When plans came to be considered for the recent large additions to the school premises it was felt that this state of things should be remedied, and steps were taken to provide adequate accommodation which would probably fulfil the requirements of students for some years to come. Eighteen additional rooms were therefore provided, making a total of twenty-seven. Each resident student is provided with a comfortable bed-sitting room, and, in addition, has the advantage of a large and handsome mess-room, a comfortable library, and a smoke room. A certain number of bedrooms are set apart for women students, who have also a sitting-room of their own. Every resident is free to use the laboratory accommodation whenever he wishes. In a district such as that in which the school is situated, where suitable accommodation is extremely difficult to find, it is probable that students, when they know of the advantages offered them by having quarters within the precincts of the school, will utilize the rooms to the fullest extent.

A NATIONAL narcotic law is being considered by the Finance Committee of the United States Senate. This bill regulates the manufacture, sale, dispensing, and distribution of narcotics. Under the provisions of the Act medical practitioners must register and pay an annual tax of 1 dollar, and when purchasing narcotics must make out a regular order form in duplicate, retaining a duplicate copy of such order for a period of two years. When the narcotics so ordered are received, the date of such receipt must be recorded in respect to each order. The dispensing or distribution of narcotics to his patient by the medical practitioner, dentist, or veterinary surgeon registered under the law, in the course of his professional practice and while personally attending such patient, would be exempt from any restriction whatsoever.

LEGISLATION FOR THE MENTALLY DEFECTIVE.

QUINQUENNIAL FESTIVAL OF THE ROYAL ALBERT INSTITUTION.

IT is the custom of the Royal Albert Institution (Lancaster) for the Feeble-minded of the Northern Counties to hold its annual meeting each fifth year at the institution to enable its supporters to see for themselves the progress made in the interval. The ninth such gathering took place on October 21st, and excited more than ordinary interest in consequence of the recent passing of the Mental Deficiency Act. Amongst those taking part were the Earl and Countess of Derby, Lord Richard and Lady Moyra Cavendish, Sir James and Lady Crichton-Browne, Sir James and Lady Barr (Liverpool), and Mr. Arthur Hill Trevor and Dr. Hubert Bond, Commissioners in Lunacy.

Lord RICHARD CAVENDISH, as Chairman of the Central Committee, presided at the business meeting in the morning, and submitted the forty-ninth annual report, which showed a very satisfactory condition of the finances, the receipts for the last year amounting to over £30,000, an advance of more than £550 upon the previous year's total. The daily average of patients resident during the year had been 696, and the death-rate had been phenomenally low, representing a percentage of only 1.47 of the number under care. Research into the family history of 500 cases had been made by the Medical Superintendent (Dr. Archibald Douglas), showing heredity as the preponderant etiological factor in the mental condition. The most notable event of the quinquennium was the provision of the new farm colony, planned for the permanent residence of 40 of the older boys to be employed on the farm, which now consisted of 205 acres of good land. The new building for this purpose was subsequently opened by the Countess of Derby, and appreciation was expressed by the visitors of its pleasing, solid, and practical character.

In proposing a vote of thanks to Lady Derby, Mr. A. H. TREVOR (Lunacy Commissioner) stated his opinion that the Mental Deficiency Act would not be at all detrimental to such voluntary institutions as the Royal Albert, which he trusted would still be maintained in a high state of efficiency. He also drew attention to the importance of an early amendment of the Education (Defective and Epileptic Children) Act of 1899; indeed, the success of the new Act mainly depended on the latter being made universally compulsory.

Sir JAMES BARR, in seconding the vote of thanks, said that he thought more radical measures would have to be adopted to check the multiplication of the feeble-minded, and that the real danger came from the higher grade of the feeble-minded rather than from the most hopeless type.

At the luncheon which followed Lord DERBY presided, as he did also at the public meeting in the afternoon. In the course of his speech at the latter he referred to the desirability of accommodation being provided at the Royal Albert for at least 900 cases, and to the anxiety of the central committee for funds to enable it to retain for life a considerable proportion of the inmates, as without proper supervision many even of the improved cases were apt to backslide.

Lord RICHARD CAVENDISH also urged the necessity of permanent care in the interests not only of the patients themselves, but of the community and the race.

Sir JAMES CRICHTON-BROWNE followed with an address on the future of the Royal Albert Institution, pointing out that under the new Act greatly increased accommodation for the feeble-minded would be called for, and he foresaw an extended sphere of usefulness for the voluntary institutions which had for so many years been carrying on a beneficent pioneer work amongst the feeble-minded. These asylums should become the training colleges from which expert teachers, nurses, and officials could be supplied to the schools, homes, hospitals, and colonies to be created under the Act. It was the Royal Albert and other kindred institutions that must supply the precise and trustworthy knowledge as to the causation of mental deficiency which would serve as a guide to its prevention. Along with heredity attention must be given to other causes of mental defect, social as well as strictly pathological. Working out the best modes of dealing with the

weak-minded of varying classes was an important function of such institutions, and in his opinion the kindergarten, the workshop, and the farm colony constituted the tripod on which the education of the mentally deficient must rest.

Dr. C. Hubert Bond, Commissioner in Lunacy, in a paper insisting on the paramount importance of the continuous care of the mentally defective, pointed out what efficient service might be rendered in this respect by committees of ladies locally organized for the purpose.

The whole institution was open for inspection throughout the day, and specimens of the work of patients were also on view. After the annual general meeting long-service medals in gold, silver, and bronze were presented to various members of the staff by Lady Moyra Cavendish. Dr. Archibald Douglas, the Medical Superintendent, received a gold medal to mark the completion of his seventeen years' service in the institution.

After-care of the Feeble-minded.

A large and influential conference on this subject, organized by the National Association for the Feeble-minded, was opened on October 23rd at the Guildhall by the Lord Mayor of London. In the unavoidable absence of Lord Methuen, who had hoped to preside, the chair was taken by Sir Edward Brabrook, and the council chamber was packed throughout the day with a large audience, consisting of members of committees of voluntary homes, county councils, boards of guardians, education committees and their officers, including medical inspectors and teachers of schools for defective children.

Sir William Chance read a lengthy paper on the Mental Deficiency Act in view of its coming into operation next year. He laid special stress upon the power of boards of guardians in dealing with defectives of the pauper class, and trusted they would do their best to obtain orders to enable them to make suitable provision on modern lines for those under their control. He thought that there would still be need for voluntary homes, and that local authorities would be glad to avail themselves of them when well managed and certified under the Act.

Miss Evelyn Fox moved a resolution calling, as a matter of urgency, for the passing into law of the Elementary Education (Defective and Epileptic Children) Act (1899) Amendment Bill, as otherwise the Mental Deficiency Act would fail in its operation as regards children, since the Act of 1899 had been only very partially adopted, though the probation of the special school ought to be universally applicable.

This was seconded by Dr. R. Langdon-Down, and supported by Dr. Melland (Manchester), and Dr. Shuttleworth. The last-named quoted the emphatic words which fell from Mr. Trevor, Commissioner in Lunacy, at Lancaster, that "the whole scheme of the Mental Deficiency Act hung upon the Act of 1899 being made universally compulsory." He also put in a plea for some consideration for the mentally deficient children of the well-to-do classes, in his experience not a negligible quantity. He trusted that efficient special schools which had been established by private enterprise to meet their needs would be recognized as "approved homes." The resolution was carried unanimously.

In the afternoon interesting papers were read by Dr. F. O. Spensley, Senior Assistant Medical Officer at Darenth, and by Mrs. Burgwin, Superintendent of London County Council Special Schools, on suitable occupations for the feeble-minded both in institutional and in school life.

Miss Dendy (Manchester) opened the discussion, and warned the audience not to think, in spite of the industrial success of voluntary institutions, that the feeble-minded could ever become self-supporting. There would always be the expenses of skilled instruction and supervision to be met.

Mr. E. A. H. Jay (London Education Committee) and others continued the discussion, and votes of thanks to the chairman and speakers brought an interesting conference to a close.

In the corridor surrounding the council chamber an extensive exhibition of the products of the labour of the feeble-minded inmates of the various voluntary homes was on view, and excited much interest.

THE BIRTH-RATE COMMISSION.

The falling birth-rate was among the subjects discussed at a conference held at Edinburgh on October 21st, under the auspices of the Scottish Council of Public Morals. A paper on the Birth-rate Commission, by Mr. James Marchant, the Secretary of the National Council of Public Morals, Holborn Hall, London, was read, in the author's absence, by Dr. J. W. Ballantyne. Among the explanations suggested by Mr. Marchant for the fall in the birth-rate, accompanied as it was by an increase in the population, were the high standard of living and love of pleasure, and the consequent shirking of parental responsibility, the higher education of women, and their wider entrance into industrial and professional pursuits, and even fear of the pains of parturition. The nation's alleged moral degeneration was frequently on the lips of preachers; and the most worthy desire to give the fewer children born a better chance in every way than the many had in earlier days was quoted with applause. Indeed, the stock of explanations was limited only by the ingenuity of the maker. A serious question was whether, behind the lower birth-rate, there was a lower degree of fertility. If it could be proved that only the weak and defective stock was ceasing to increase there would be little cause for complaint, but apparently the fall in the birth-rate ran through all the classes.

In Mr. Marchant's paper details were given of the private Commission on the Birth-rate established in this country. France, he stated, had gone a step further and had appointed a parliamentary committee to inquire into the national, social, and fiscal aspects of its declining birth-rate. Matters in France were indeed serious, even disastrous, for in the past year there had been an excess of deaths over births and a shortage of 34,000 lives, equal to a good-sized city. In this country the private Commission might not expect to do so much as a Royal one would have accomplished, but it was known that there was no likelihood of the latter being established for a long time to come, and, after all, the private Commission might do some things which the Royal one would miss, for the witnesses would be free to speak in private, and the Commission might thus get a nearer sight and insight into what was really taking place amongst the population. It would be less formal than a Government inquiry, and would be entirely free from all party bias.

The Chairman of the Commission is the Right Rev. Bishop Boyd Carpenter, K.C.V.O., D.D., and other members are the Bishop of Birmingham, the Duchess of Marlborough, Lord and Lady Willoughby De Broke, Lady Aberconway, the Bishop of Barking, the Dean of Westminster, the Dean of St. Paul's, the Right Hon. Sir John Gorst, LL.D. (Vice-Chairman), the Right Hon. Sir Thomas Whittaker, M.P., Sir J. Macdonell, C.B., the Ven. Archdeacon Sinclair, D.D., Principal A. E. Garvie, the Rev. J. Monro Gibson, the Rev. R. F. Horton, the Rev. F. B. Meyer, Rev. Thos. Phillips, Rabbi Professor H. Gollancz, Professor L. T. Hobhouse, Mrs. Bramwell Booth, Mr. A. G. Gardiner, Mr. Walter Heape, F.R.S., Mr. J. A. Hobson, Mrs. George Morgan, Mr. H. B. Grylls, and Mr. Robert Donald. The medical profession is represented by Sir A. Pearce Gould, K.C.V.O., Sir James Crichton-Browne, Surgeon-General G. J. H. Evatt, C.B., Professor G. Sims Woodhead, Dr. A. Newsholme, Dr. T. H. C. Stevenson, Dr. J. W. Ballantyne, Dr. C. W. Saleeby, Dr. Agnes Savill, Dr. Ettie Sayer, Dr. Mary Scharlieb, Dr. Florence Willey, Dr. A. T. Schofield, Dr. Major Greenwood, and Dr. F. Fremantle.

The inquiry is to be made in four directions. First, the extent and character of the decline are to be considered under such headings as the present British birth-rate and infantile mortality, general and classified according to income, occupation, province and county, urban and rural, and religion (if possible); statistics showing the proportion of sterile to total marriages (to find out whether smaller families or total childlessness is the cause of the fall); foreign statistics showing the extent of declining birth-rates, special attention being paid to France and the Jews. Secondly, the alleged causes of the decline are to be investigated, under the headings of physiological causes (for example, the effect of town life, etc., upon lateness of marriage, fertility, number of marriages), prudential motives, and methods of restraint (moral, mechanical, and

chemical). Thirdly, the effects of the decline of the birth-rate, whether due to natural or artificial causes, are to be searched out, under the headings of effects upon the children, upon the man and woman, upon married people, and upon home life. Fourthly, economic and national aspects are to be dealt with, and the Commission is to consider, for instance, the alleged results of a rapid increase of population in a country where the land is fully cultivated, of a permanent surplus of workers upon the condition of the working class (in the matter of unemployment, overcrowding, etc.) in the case of a declining or stationary population, and the alleged national danger of a disproportionate increase in other nations.

Dr. J. W. Ballantyne, who opened the discussion at the meeting in Edinburgh, spoke of the necessity which existed for such a commission. So tremendous a change in the vital statistics of a country as was represented by the fall of the birth-rate from 35 per 1,000 to 25 per 1,000 called loudly for scrutiny and investigation in a collective fashion. In some thirty years the population of Edinburgh had increased by about 100,000 persons, but the number of births in the city was now actually less than it was in 1881; then between 7,000 and 8,000 babies were being born annually, now there were only between 6,000 and 7,000. The fall was beginning to make itself felt in the board schools, where this year the enrolments were 748 less than last year, and last year had shown a decline on the preceding year. There were 57,000 houses in the city with a rental of less than £30 per annum, and from more than 32,000 of these houses no children set out to school in the mornings. In his inaugural address to the Edinburgh Obstetrical Society some seven years ago he had dealt with the subject of the falling birth-rate, and had then ventured to prophesy that the decline in the birth-rate would not be checked, but he had hardly been prepared for the amount or the persistency of the fall which had actually taken place. There was no doubt that the human race had now begun an experiment upon its reproduction, very much as in the past it had experimented upon its digestion and other bodily functions. No one could foretell the results, but one immediate and welcome result had been the appreciation in the value of infant life, before and after birth, which had followed upon the decrease in the number of babies arriving. They were now counteracting the fall in the birth-rate by keeping more of the babies in life after they were born and probably by bringing more of them safely to their birth. This plan could not, of course, succeed always, but in the meantime it was possible thus to maintain a sort of equilibrium so far as the number of lives in the nation was concerned. There was still much to be done, and the Commission would help to make this clear; it had to discover how many antenatal lives were being lost every year through miscarriages and untimely premature births; for this purpose a stillbirths registration Act was needed; the discomfort and even suffering which expectant mothers at present endured before their babies came into the world must be removed, and it was therefore necessary to make it possible for the married women working in factories and the like to stop their work a month or two before the expected date of confinement.

Dr. C. W. Saleeby continued the discussion, and dealt with the various subjects of inquiry to be taken up by the Commission; and Sir Thomas Clouston, who was in the chair, said that the remedy for the falling birth-rate must be a moral one, there must be a quickening of the conscience of the population; that quickening must be founded upon scientific and social facts, and in that direction rather than in that other of legislation help was to be sought for.

Other subjects discussed during the conference also had medical aspects. Thus, Professor J. Arthur Thomson, of Aberdeen, dealt with "sex-education," weighing the reasons for and those against experiments in sex-education in schools, and deciding that since instruction was given in regard to health and disease, it ought also to be given in regard to sex and the continuance of life. It should be carefully graduated for different conditions and ages, and that for boys should be different from that for girls. It should be linked on to nature study, botany, zoology, and physiology, and whether it was given by the head of the school, by the science teacher, by the school physician, or by lending booklets, care must be taken not to say too much.

ONE HUNDRED YEARS AGO.

THE PHYSIOLOGISTS IN 1813.

A WRITER in the *Medical and Surgical Journal*,[1] reviewing two works by Richard Saumarez, said "We do not profess to understand Mr. Saumarez's philosophy or physiology; this, however, may be owing either to our dulness, or to his having lived a century too soon." This was written, doubtless, in the November or December of 1813, for it appeared in the part of the *Journal* published on January 1st, 1814. If, therefore, the second alternative of the critic's explanation of his inability to understand Mr. Saumarez's philosophy or physiology was the correct one, we, living at the present day, exactly a hundred years later, ought to be in the happy position of fully appreciating it.

First, then, who was this Richard Saumarez, whose views on philosophy or physiology were adjudged to be a century too early in their appearance to receive a welcome with understanding? To answer this question we must travel back in time to about the middle of the eighteenth century and in locality we must go to the Channel Islands.

Guernsey may be said to have been the cradle of the Saumarez family, for Henry II gave to an early de Sausmarez the fief of Jerbourg in that island; and there we must imagine his descendants living and marrying with the folks of the place, and sometimes with those of Jersey, till the beginning of the eighteenth century, when we find a certain Matthew de Sausmarez playing his part there as a colonel of the militia (France threatening to be intrusive in these days). The colonel married Anne Durell of Jersey, and she brought him three sons who did honour to the family name; there was a second Matthew (whom it will be well to call the "younger"), a Philip, and a Thomas.

Philip (1710 to 1747) and Thomas (died 1766) both lived to work their way up in the Royal Navy to the rank of captain; there was much fighting going on in these years, chiefly against the French, and the brothers had their share, capturing 64-gun ships and distinguishing themselves in other naval ways and manners. It was Philip who changed the family name from de Sausmarez to Saumarez. Their brother Matthew (1718 to 1778), the "younger," seems to have remained at home in St. Peter Port, the only town in Guernsey. He was twice married, and by his second wife, Carteret le Marchant, he had several sons who kept up the Saumarez credit in the services; there was John, the eldest, an army surgeon ("who lived at the old house in the Plaiderie, near the town church in St. Peter Port"[2]); there was James (1757 to 1836), who saw much fighting in his long life, and rose to be Baron de Saumarez and an admiral, having been second in command at the battle of the Nile, and having won a great victory against heavy odds off Cadiz; there was Thomas (1760 to 1845), who entered the army, served in America during the revolutionary war, was knighted in 1795, and was advanced to the rank of general on the coronation of Queen Victoria; and finally, there was Richard (1764 to 1835), who went to London, became a student of medicine at the London Hospital, was surgeon for many years to the Magdalen Hospital, Streatham, had a large and lucrative practice in the metropolis, and wrote the works which drew from the perplexed critic in the *Medical and Surgical Journal* the suggestion that he (Richard) had, so far as his views on physiology were concerned, been born a century before the time.

Richard was neither in the army nor the navy; but he had the Saumarez fighting spirit, and Mr. D'Arcy Power, in the account he gives of his life,[3] says he was "a prolific and rather polemical writer." The blood of the brave old sea-dogs from whom he sprung was running in his veins; if he did not wield the sword he drove the pen, as the Surgeons' Company found to their cost in 1796, and if he did not fight the French by land or by sea, he waged a wordy war against Baron Anthelme Balthasar Richerand, the noted physiologist of Paris. Richerand (1779–1840) had published in 1801 a work entitled *Nouveaux élémens de physiologie*, which had been extraordinarily successful, not only in France, but also in England; ten editions

[1] *Edinburgh Medical and Surgical Journal*, vol. x, p. 132, 1814.
[2] *Dictionary of National Biography*, vol. l, p. 319, 1897.
[3] Ibid.

appeared in Paris between 1801 and 1833, and several English translations saw the light in London, Philadelphia, and New York. It was probably Dr. G. J. M. de Lys's translation from the fifth French edition which specially stirred up Dr. Saumarez and brought him into the arena in 1813, for Dr. de Lys's translation appeared in 1812. Dr. Saumarez, let it be known, had published in 1798 his *New System of Physiology*, a second edition had appeared in 1799, and a new edition in 1813; in 1812, too, his work on the *Principles of Physiological and Physical Science* had come out.

With these facts in mind, let us imagine Dr. Saumarez opening Dr. de Lys's translation of Richerand and reading there in the first sentences the following words: "It is a singular fact that in this country, which has given birth to some of the most important discoveries in physiology, there should not have been produced a single elementary or systematic work on the subject." We may well suppose that this son and brother of the old sea-dogs of Guernsey must have rubbed his eyes and read that sentence over again. "Not a single elementary (well, that may be true enough, mine was not elementary) or systematic (what does the man mean?) work! Why, what does he make of my two volumes with a thousand pages, second edition too, my *New System of Physiology?* What, for that matter, has he to say to my book of this very year, my *Principles of Physiological and Physical Science, comprehending the Ends for which Animated Beings were Created?*" There is no one so blind as the man who won't see. It was annoying; but he was asked to give the annual oration before the Medical Society of London in 1813, and that afforded him an opportunity of saying his word about Richerand and his *Physiology*, and striking another blow at his old abhorrence, the Brunonian system, that view of physical life which looked on it as consisting in a peculiar excitability. The easiest way nowadays to get an idea of Saumarez's opinions is to read his article contributed to the *Medical and Physical Journal* for November, 1799,[4] for it really contains in an abbreviated form most of the views he afterwards so strongly advocated. It is really an answer to a letter which had appeared in the September part of the *Journal* by "R. B. M." (whoever he was) on the subject of animal impregnation. In that letter the writer accepted Dr. Haighton's view that the formation of corpora lutea in the ovaria was the true test of impregnation having occurred, and that the contact of the semen with the ovaria was not necessary to produce that effect. More, he expanded it as follows: The act of coition induced impregnation, and the semen passing into the vagina was thence absorbed, and carried into the general system, where by its peculiar stimulus it produced those changes which happen after impregnation in the uterus, its appendages, and the breasts, the stimulus of the semen perfecting what the stimulus of coition had begun. The writer was ready for the objection that if impregnation was occasioned merely by a stimulus, how was it that females never conceived from any cause except the introduction of semen into the vagina? His answer was that whilst true conception could take place from no stimulus except semen, yet some of the changes consequent on impregnation might and did sometimes happen from stimuli of other kinds; and he instanced the finding of hair, teeth, and other fetal structures in the ovaries of women who had never had connexion. In them some unusual stimulus had caused a very imperfect kind of impregnation. These were the statements which Dr. Saumarez took up for criticism.

In attempting to estimate the value of the views put forward in the letter, and in Saumarez's answer to it, one must not forget that impregnation a hundred years ago was still a matter surrounded by mystery. It was not yet known how the semen fertilized the ovum. The spermatozoa had indeed been recognized by Hamm and Leeuwenhoek in 1677, but for long these seminal animalcules were regarded as parasites; and Richard Owen, writing in 1836, put them among the entozoa, and gravely stated that although no distinct organs of generation had been detected, there was reason to suspect that the spermatozoa were oviparous. Spallanzani, it is true, had shown by experiment in 1786 that the seminal particles were in all probability the fertilizing elements in the semen, but his discovery was not generally accepted until 1826, when it was confirmed by Prévost and Dumas. The views current when Saumarez took up his pen to answer "R. B. M." were those of impregnation at a distance and of fertilization by contact of the semen with the ovary. Unless this fact be kept in mind, it will be almost impossible to get the rest of the picture in focus; without it one can hardly understand the allusions to sympathy and the like which abound in Richerand's and Saumarez's writings.

Saumarez's refutation of one part of the letter writer's conclusion is powerful. "R. B. M." had stated that he believed with Haighton that the contact of the semen with the ovaria was not necessary for impregnation, and Saumarez proceeds to examine the process of fertilization as it occurs in vegetables and in the various types of animal life (snails, frogs, rabbits, etc.); he finds that in all the inferior order of animated beings the union of the semen to the ova is proved directly, and he asks why it should be denied to the higher classes. To say it does not occur in them is "the mere *ipse dixit* of your correspondent" (he is writing to the editor of the *Journal*), "unsupported by proof, refuted by analogy, arising from his ignorance of the true end for which the act of coition is designed." If we place for semen and ovaria the words spermatozoa and ova we know now that Saumarez was right in his belief, even although we are still forced to confess that we do not quite comprehend the mechanism by which some embryonic rudiments appear in dermoid tumours and teratoma of the ovaries.

He is not quite so fortunate in his refutation of the second statement—namely, that the formation of corpora lutea was the true test of impregnation having occurred; but this is due to his want of knowledge of the facts of ovulation, and especially of the important circumstance that ovulation occurs independently of sexual connexion. Still, so far as his information, aided by some experiments, took him, he was right in maintaining that the existence of corpora lutea was not the true and infallible test of animal impregnation; he was also correct in saying that the only certain test was the actual existence of one or more fetuses. We now know that the presence of corpora lutea in the ovaries simply means that ovulation has occurred, and that ova have been set free from the ovisacs; of course, one or more of them may have met a spermatozoon and been impregnated. Another fact has, however, emerged—namely, that the corpus luteum whose ovum has become fertilized undergoes changes which are different (in duration and degree, at any rate) from those which take place in the empty ovisacs of the ova which have missed impregnation; in other words, we are in possession of the knowledge of the corpus luteum of pregnancy. Saumarez, therefore, was partly right and partly wrong, and the writer whose views he was controverting was also partially right: the corpora lutea are of two kinds, those of menstruation and those of pregnancy; the latter are a sign that impregnation has occurred, the former are not.

It is rather difficult to grasp the views of a hundred years ago, for we can only with great concentration of thought divest our minds of more modern views of conception and fertilization; with an effort, however, we may follow Saumarez's statement, as given below, and we cannot fail to appreciate its correctness so far as it went. He said:

> The different changes which the several parts in the male and female undergo all tend to one end, namely, the immediate contact of the fimbriated extremity of the Fallopian tubes to the surface of the ovaria; that an union might take place between the fluid which the fimbriae convey and the ova (of a mucus-like appearance) which the vesicles discharge; that it is the semen which communicates the characteristic properties of the male; and the Fallopian tubes, the medium by which it is conveyed, in the same manner as the fluid which the vesicles discharge, contain and convey the characteristic properties of the female; that the fimbriated extremity of the Fallopian tubes is the immediate seat where this effect takes place; that the union of both constitutes *conception*, or the immediate reception of a *living principle*, in which the source and power of action essentially resides, and which participates the nature of both parents, by the combined action of whom it was produced.

Saumarez then proceeds to define his "living principle" negatively and more precisely:

> It is not the farinaceous matter of which the seed is composed, the animal gluten with which an egg is filled, or the atom of mucus in which the primordia of the embryo are

[4] Saumarez, R., *Med. and Phys. Journ.* London. Vol. ii, for 1799, pp. 242, 321.

contained, which constitutes the powers by the energy of which organization is elaborated and action ultimately produced; each of these bodies is a chaos in all its parts, a *rudis indigestaque moles;* the mere matter of which they are composed, when deprived of this living principle, undergoes the usual changes of decomposition and decay, by the processes of putrefaction and fermentation, and yields nearly the same materials by chemical analysis; it is the living principle . . . that constitutes the architect by which the machine is erected; it is the base on which the whole stands, it is the bond of its elementary parts, the cement that unites them in one whole. . . .

If Saumarez were living now he would pronounce that it is not the protoplasm of the cell, or its nucleus, or even its chromatin filaments which constitute the power by the energy of which organization is elaborated and action ultimately produced; it is the living principle. Life, therefore, he defined as the principle (that is, the efficient and primary cause) by the energy of which various species of matter are converted to one kind, under one system, so that the matter thus converted possesses the power of resisting the operation of external causes and of preserving itself from putrefaction and decay.

The power of life does not reside in the food, as some materialists would have us suppose, who think that matter "can convert *itself* into different organs, in fabric most delicate, in action most extensive, in form most diversified," wrote Saumarez, waxing eloquent. "Equally absurd is the opinion of those pure defecated philosophers who suppose that the oxygenous matter which vegetables in the day are constantly discharging from the whole external surface of their foliage as urinous and dead, constitutes the principle of life, in which all power essentially resides." He has a hit—a specially hard one, too—at the Brunonian system, which proclaims life to be a forced, not an original state, making life the effect of action instead of action the effect of life, making life come out of the body instead of residing in it.

With these views so precisely put forward in 1799 and so fully described in the *New System of Physiology*, how could Dr. de Lys say that there was not a single elementary or systematic work on physiology in the country! It was indeed ultra-erroneous of him, we can imagine Dr. Saumarez saying, and not without cause; and then to make these offensive words the preface to Richerand's *Physiology*, that was doubly wrong of him. Look at the Frenchman's definition of life:[5]

> The term "life" is applied to an aggregate of phenomena which manifest themselves in succession for a limited time in organized bodies; combustion is likewise only a combination of phenomena. Oxygen unites with the substance which is burning, caloric is discharged from it. Affinity is the cause of these chemical phenomena, as attraction is the cause of the phenomena of astronomy, and in the same manner as the sensibility and contractility of living and organized bodies are the primary causes of all the phenomena which such bodies exhibit, phenomena which in their union and aggregate succession constitute life.

He is attributing vital phenomena to organization solely, saying that life presupposes organization. Oh, no doubt Richerand is the man and wisdom shall die with him, the "pure defecated philosopher" that he is.

But here we must leave our two physiologists engaged in fierce combat, like Professors Challenger and Sumerlee in the *Lost World* of the active imagination of our medical novelist of the present day. If the reader care to do it, he may by placing Saumarez's *New System of Physiology* and Richerand's *Elements of Physiology* side by side learn something of the weapons with which they fought; and if he will also read Dr. Saumarez's oration to the Medical Society of London—dedicated to the president, J. C. Lettsom, M.D., to the Council and Fellows—he will find what the orator thought, placed in small compass but with no lack of force, as the following sentence will show:

> The power, the nature, and the ends of life, or vitality, are so little understood, and have been so shamefully outraged by Richerand in a Physiological Book [note the descriptive epithet] which is in general circulation; that I have deemed it a duty to expose the wicked tendency of his opinions, and to put the subject on its true foundation,—briefly it is true, but, I trust, explicitly.

Now, was the reviewer right in the second of his alternative suppositions when he said that Mr. Richard Saumarez had lived a century too soon? If Saumarez were to suffer a reincarnation, if he were to spring, phoenix-like, out of his own ashes by the help of the "principle of life," would he find the medical world of to-day standing on his side in the battle or massed with Richerand the enemy? We think he would discover that the fight was still raging, that it had become a hundred years' war, and that, with his weapons modernized, he might still strike a blow at the "pure defecated philosophers." If he paid attention, he would get to know of experimenters who were, so it was said, just trembling on the brink of the discovery of how to manufacture a bit of living matter in the laboratory; if he turned his ear towards another quarter, he would hear a whisper from the presidential chair of the British Association, and might distinguish these words:[6]

> I have been called a "vitalist," and in a sense I am; but I am not a vitalist if vitalism means an appeal to an undefined "vital force" as against the laws of chemistry and physics.

He would find that many things had been discovered of which the philosophy of 1813, whether Richerand's or his own, had no inkling; but he would also perceive that there was still the same line of division, although the terminology was different, and that the "controversial pen" was even now a weapon in the hands of "disputatious men." No, Saumarez could hardly be said to have been a century before his time, and yet in a sense he was, for he had some ideas which were destined to have a very long life and which are not dead yet, nor even decrepit.

[5] *Elements of Physiology*, by A. Richerand, p. 1, London, 1812.

THE DEADLOCK IN THE INSURANCE QUESTION IN GERMANY.

THE representative meeting of the German medical profession called to consider the position brought about by the refusal of the Insurance Societies' Union to continue negotiations with the doctors met this week in Berlin, but the result has not been made public at the time we go to press.

The *Muenchener medizinische Wochenschrift* (October 21st, 1913) published the draft contract for service which was presented to the representatives of the Insurance Societies' Union, and also documents from the latter body, setting forth its reasons for breaking off the negotiations. From the latter it is abundantly clear that the difficulty lies not so much in the terms as in the insistence on the part of the doctors on the establishment of a general form of contract which shall be governed by the decisions of the local medical profession. It is alleged that the "collective contract proposed is nothing more or less than an organization or coalition dictation (Organizations- oder Koalitionszwang) to all medical men engaged in contract practice." The idea underlying the documents is that the societies object to the medical organizations requiring medical men holding contract appointments to come under their direct jurisdiction. The societies claim that this is practically intimidation, and propose to fight against this on principle. But a careful perusal of the documents shows that what the societies really object to is the trade-union principle of the Medical Federation and the Leipzig Union. The weakness of the ostensible ground of objection may be seen from the perusal of the contract, which provides for the safeguarding of the interests of all doctors, whether they belong to the organizations or not; or, in other words, for the same treatment of "non-union" as of "union members." An attempt is made to lay the blame for the breakdown of the negotiations on the shoulders of the doctors, because they refused the terms offered by the Union of Insurance Societies. But no mention is made of the fact that the terms which the doctors declined would have placed the whole control of the conditions of the service in the hands of the societies. Many fights have been waged within the past two or three years to reform the untenable conditions which the societies impose on their medical officers.

[6] BRITISH MEDICAL JOURNAL, ii for 1913, p. 688.

THE REJECTED DRAFT CONTRACT.

Draft Contract between the Head Union of German Works' Clubs (Betriebskrankenkassen) in Essen, on the one hand, and the German Medical Societies' Federation and the Union of German Doctors for the furtherance of their economic interests, in Leipzig, on the other.

ARTICLE 1.

The Club Doctors' contracts[1] shall be entered into on the part of the Insurance Societies either by the Committees of the individual societies or by the Committees of the Societies' Unions, formed in accordance with the paragraphs 406 and 407 of the Reichsversicherungsordnung; and on the part of the doctors by the local medical organizations, and in the event of a limited number of club doctors being engaged, by the local medical organizations in consultation with the individual doctors concerned. In the event of the admission of all medical men willing to give service, the Club Doctors' contract may be replaced by a legally binding recognition of the rules of the local medical organizations and of the contracts adopted by these organizations.

ARTICLE 2.

The form of negotiation between a society or a union of societies[2] and the doctors shall be determined by agreement between the society or the union of societies and the existing local medical organization.

Club doctors' contracts should be drawn when practicable on the principle of organized free choice of doctor. They may, however, when the local conditions require it, be drawn according to the "club doctor" system or the "district doctor" system.

ARTICLE 3.

Where organized free choice of doctor is determined on, non-members of the local medical organization, provided that they enjoy full civil rights and are prepared to recognize the accepted form of contract, shall be free to enter into the contract.

ARTICLE 4.

Medical attendance on the members of the Societies (as well as those members of their families which are also insured, where family insurance applies) who join the societies voluntarily, in accordance with paragraphs 176, 177 of the R.V.O. is not included in the contracts. The only exceptions to this are in very poor districts, and also when the number of such members of a given society is shown to be extremely small.

ARTICLE 5.

The remuneration for medical service shall be made either per attendance or on a yearly fixed scale (capitation or a fixed percentage of the annual earnings).

The scale shall vary according to the extent of the medical services to be rendered and the local conditions. When a fixed scale of remuneration is determined upon, special fees shall be accorded for extras, such as services which necessitate prolonged attendance, and which are recognized in the medical scale of fees and in accordance with local custom as demanding special fees.

As a general rule, the remuneration for medical attendance on insured persons whose yearly incomes exceed 1,800 marks, and on their insured dependants, shall be calculated per attendance. When, as an exception, a fixed scale is adopted for all insured persons, this must be so calculated that it corresponds to a fee of not less than 1.50 marks for a visit, and 1 mark for a consultation in the doctor's house.

Out-of-pocket expenses of the doctors must not be covered by contract. The extra fee for distance shall not be less than 1.50 marks per double kilometer (the journey there and back), and 40 pfennigs for the loss of time.

ARTICLE 6.

Private clinics of medical men undertaking contract practice shall not be excluded on principle from the places at which institutional treatment may be carried out.

ARTICLE 7.

The services of non-medical persons may only be utilized on the order of the doctor, or when in an emergency a medical man is not available.

ARTICLE 8.

In every club doctor's contract a Committee of Reference must be named for the determination of matters of common interest, and for the amicable settlement of disputes, arising out of the contract. The insurance society and the local medical organization shall elect three members each to serve on the committee. At least one of the medical members must be a club doctor. The Committee of Reference may be called together by either of the interested parties, namely, by the society or by the local medical organization, and also by any of the club doctors. If a settlement is not arrived at by the commission, the commission must form a court of arbitration. The chairman of the latter shall be a barrister holding the qualifications for the post of judge.

ARTICLE 9.

The club doctors' contracts shall commence on January 1st, 1914, and shall terminate on December 31st, 1918. Contracts entered into after January 1st, 1914, shall also terminate on December 31st, 1918.

ARTICLE 10.

Provisions must be included in those contracts in which organized free choice of doctor is included to protect the societies from excessive financial burdens through the action of the medical practitioner, not only in regard to the claims for fees, but also in respect to the prescription of medicines and the recommendation of sick pay. In the case of payment per attendance, if the society only undertakes to grant the regular benefits, the total sum of money to be paid to the doctors shall not exceed 22½ per cent. of the highest possible annual contribution; fees for travelling are, however, not to be included in these sums. The total amount which may be paid for extras may not exceed one-third of the fixed contract sum for the year. A medical court consisting of several members must be appointed to control the whole contract practice arrangements, especially in respect to the prescription of medicines, nutrients, and drugs, and the recommendation of sick pay, and this court shall have disciplinary powers and be empowered to alter the fees in favour of the societies and of the other medical practitioners.

The local medical organizations are required to hand over these functions to a body constituted *ad hoc*.

ARTICLE 11.

In the event of a settlement in the proceedings referred to in Article 2 between the societies and the local medical organization not being arrived at, a court of arbitration shall, after considering the arguments, decide between the parties.

The court of arbitration shall consist of three representatives of the affected society and three of the local medical organization. The director of the corresponding superior insurance committee (*Oberversicherungsamt*), or the President of the Provincial Court shall be invited to act as chairman, or to appoint another legal member to take the chairmanship. The parties concerned are empowered to add an additional member of the court in the person of a representative of the central organization which has drawn up the contract. The court of arbitration may be summoned by either party, and shall decide the question, even if one of the parties refuses to appear and take part in the proceedings. The court of arbitration, in arriving at a decision, is bound by the terms of the contract.

The findings of this court shall be legally binding on both parties, and shall be final. Each of the parties has the right to publish the findings.

ARTICLE 12.

The Head Union of Works' Clubs shall undertake to notify the Union of German Doctors by October 15th, 1913, which insurance societies have recognized this contract and have undertaken to abide by its terms, and conversely the Union of Doctors of Germany shall notify the Union of Works' Clubs by October 15th, 1913, which local medical organizations have recognized this contract and have undertaken to abide by its terms.

Both contracting parties undertake to induce the affiliated insurance societies and local medical organizations to accept the contract.

ARTICLE 13.

Insurance societies which do not recognize this contract shall not be supported in any manner whatsoever by the Union of Works' Clubs in the event of a dispute with the local or central medical unions which have recognized the contract.

Insurance societies which have recognized this contract, but which do not accept the findings of the court of arbitration, shall not be supported in any disputes with the local or central medical unions, and are liable, together with the Union of Works' Clubs, for any damages arising to the medical organizations from the non-acceptance.

[1] The term "kassenärtliche Vorträge" is translated by "Club Doctors' Contracts" as the nearest equivalent available.

[2] Reichs-Versicherungs-Ordnung (State Insurance Order).

ARTICLE 14.

Local medical organizations which do not recognize this contract shall not be supported in any manner whatsoever by the medical organizations in the event of a dispute with insurance societies which have recognized the contract.

Local medical organizations which have recognized this contract, but which do not accept the findings of the court of arbitration, may not be supported in any manner whatsoever in a dispute with the insurance societies. The protection of the medical organizations shall not be given to them. They are liable, together with both the medical organizations subscribing to this contract, for any damages to the insurance societies arising out of the non-acceptance.

ARTICLE 15.

All disputes and differences existing between the insurance societies and medical organizations recognizing this contract shall cease forthwith. In their place negotiations shall be opened on the basis of this contract, and, in the case of necessity, the court of arbitration shall be referred to.

ARTICLE 16.

Every participating insurance society and medical organization undertakes to further the contract negotiations to the best of their ability, so that at the latest the contracts which will come into effect on January 1st, 1914, may be signed on November 15th, 1913. Existing contracts shall be, as far as is possible, modified to fall into line with this contract in the interval.

ARTICLE 17.

This contract holds good until December 31st, 1918, and shall be automatically renewed for periods of five years, unless notice be given before June 30th of the last year of the contract. The parties to the contract must meet at latest in the month of March of the last year, in order to alter the contract should the experience at that time necessitate this, or to agree to a fresh contract.

LITERARY NOTES.

DR. JUDSON S. BURY has succeeded Dr. Brockbank in the editorship of the Manchester *Medical Chronicle*.

The first number of the *Indian Journal of Medical Research* appeared in July. It is edited by the Director-General of the Indian Medical Service and the Sanitary Commissioner with the Government of India, in collaboration, among others, with Sir Ronald Ross, Sir David Semple, Major S. R. Christophers, and Lieutenant-Colonel L. Rogers. The new periodical, which is to take the place of *Paludism* and the *Scientific Memoirs*, is the organ of the Indian Research Fund, the objects of which are "the prosecution and assistance of research, the propagation of knowledge and experimental measures generally in connexion with the causation, mode of spread, and prevention of communicable diseases." It will deal with every branch of research directly or indirectly connected with medical and sanitary science, including hygiene, sanitary engineering, sanitary laws, statistics, bacteriology, parasitology, and entomology. In short, it is intended to be a record "of what is being done in India for the advance of sanitary science in the widest sense of the term." As far as can be judged from the first issue, the *Indian Journal of Medical Research* is a valuable addition to the literature of tropical disease. A specially valuable feature in such a periodical is the clearness of the illustrations.

In the JOURNAL of August 23rd, p. 506, reference was made to the mediaeval practice of solemnly trying animals for misdeeds of one kind or another. This curious custom shows that the test of knowledge of right or wrong, which till quite lately was constantly—one might almost say automatically—applied by our judges in cases of murder when the state of mind of the accused was put forward in his defence, was in former days extended to animals. It survived in some places, as we learn from the *Chronique Médicale* of September 15th, till a comparatively modern day. A correspondent of our contemporary quotes the Abbé Galiani, one of that brilliant society of the *philosophes* whose teaching in a general way is represented in the famous *Encyclopédie*. Writing from Naples to Madame d'Epinay (whose name is familiar to readers of Rousseau's *Confessions*) under date August 27th, 1774, the abbé refers to "two dogs condemned to death by a legal tribunal and done to death by the public executioner for having bitten a child."

Perhaps the most readable contribution to the October number of the *British Review* is a slashing article on Mr. Bernard Shaw's *Androcles and the Lion* by Mr. J. E. Harold Terry. Its gist may be gathered from the following sentence:

Mr. Shaw has been pleased to describe his latest achievement as a fable play. Feeble, we venture to suggest, would have been as apt as fable and pot-boiler more accurate than play.

Perhaps, in view of Mr. Shaw's uninspiring diet, the piece is to be regarded as an example of "vegetable degeneration," a subject which is treated of by Professor George Henslow. Among the other contents of an interesting number may be mentioned an article on the critic as destroyer by Robert Lynd (in which, by the way, the extraordinary statement is made in the face of a famous passage in *Don Juan* that Byron thought nothing of Keats); and one entitled "Olympic Games" by Mr. Nowell Smith.

L'Hygiène is always welcome, and the September number, both in respect of literary matter and illustrations, is well up to the high standard of excellence we have learnt to look for in this periodical. Dr. G. Linossier of Lyons discusses "alimentary anaphylaxis," which, being interpreted, means what are generally known as idiosyncrasies in regard to certain articles of diet. He says Besredka has shown that an animal in which anaphylaxis has been produced by a large injection of serum can tolerate another one without ill effect, provided that in the interval between them extremely small doses of the same serum have been administered. These preliminary injections bring about antianaphylaxis. Like results may be obtained in a person who is the subject of alimentary anaphylaxis by giving him, after a certain interval of privation, increasing doses of the injurious food substance. But if the recurrence of untoward effects is to be prevented, one must begin with extraordinarily small quantities—one or two drops of yolk of egg, a tablespoonful of *café au lait*—and follow up this rehabituation without interruption. The most serious accidents occur when, after long privation of the anaphylactizing food, it is again taken in considerable quantities without preliminary preparation by minute amounts. Dr. Maurice de Fleury writes on the hygiene of neurotic subjects, with special reference to prophylaxis. Dr. Pescher describes a method of "respiratory training" by means of bottles or combinations of bottles of increasing capacity fitted with tubes, the whole forming an apparatus to which the name of "spiroscope" has been given. Dr. Henri Meurisse contributes an interesting article on the use of dogs for the discovery and transport of the wounded in war.

We have often had occasion to point out the grotesque forms which Latin is often made to assume in medical writings. The other day we read in a contemporary a description of an operation for abscess of the labium *major*. In the JOURNAL of April 12th, 1913, p. 780, we gave a few other instances culled from various medical periodicals—English, American, French, and Italian—together with others from the political press to show that medical writers are by no means the only or the worst offenders. We note with interest that even in the Middle Ages, when every educated man was supposed to know Latin, the clergy were guilty of barbarisms as bad as any we have found in contemporary literature. The *Periodical* for October, speaking of Mr. A. L. Smith's *Church and State in the Middle Ages*, gives some examples. He refers to

the bishop who fined a priest for having joined the sect of Catholics; the priest who confused Barnabas with Barabbas, and St. Jude with Judas; the other who translated *Iohannes ante portam Latinam* as "John who, leading the way, carried Latin into England"; a third who preached on our Lord using hyssop (*Dominus his opus habet*); a fourth who discovered a king called Busillis (*in die-bus illis*); and the archbishop who first tried *in isto sacro synodo*, then being prompted with an *a*, tried *in ista sacra synoda*, then hearing his prompter say *o* and *a* tried *in isto sacro synoda*. Giraldus has pages of these stories, and attributes some of the evil to the displacement of the study of literature by the study of law.

In the same way much study of medicine by displacing the study of literature leads to indifference to grace of style or even of grammatical propriety even in our own language. How much more active is this influence in a language imperfectly learnt and generally almost wholly forgotten!

British Medical Journal.

SATURDAY, NOVEMBER 1st, 1913.

THE ASSOCIATION AND THE INSURANCE SCHEME.

TWO NEW COMMITTEES.

The meeting of the Council of the British Medical Association on Wednesday last (October 29th) was prolonged, owing not only to the volume of the business it had to transact but to the importance of some of the points which arose and the interest they excited. The Insurance Act Committee presented a long report, and the matters to which reference is made arose out of it or in connexion with it.

One of these matters was the position of the Association in relation to those members who have not joined panels under the Insurance Act. Dr. Napier Jones, the representative of the Southern, South-Eastern, and Oxford and Reading Branches, speaking as a member who had joined the panel, expressed the opinion that it would be advisable to appoint a special committee to consider in what manner the Association can best promote the interests of members who have not entered into agreements with Insurance Committees, and moved a resolution to that effect. This was supported in a very able and temperate speech by Dr. Biggs, a member of the Council residing in South London. Mr. Verrall, after pointing out that the Insurance Act Committee, in his view, was appointed to watch the administration of the insurance scheme in the interests of all members, and had endeavoured to do so, expressed the opinion that in all the circumstances it would be wiser to appoint a special committee, as suggested by Dr. Napier Jones and Dr. Biggs, rather than delegate this side of the work to a subcommittee of the Insurance Act Committee, as that committee had suggested, even though twelve out of its twenty-three members were not on any insurance panel. The proposal was accepted, and the question of the constitution and mode of appointment of the special committee was then considered at some length; it was decided that to avoid delay the best course would be for the Council to proceed at once to constitute the committee. It was settled that it should consist of fifteen members, and that the Council should there and then elect nine, leaving the remaining six to be co-opted by this nucleus committee. It was considered desirable that two of the nine members then to be appointed should be serving under the Insurance Act, so that the committee might have the advantage of hearing their point of view. The seven members of the Association not on any panel who were elected were Drs. Beaton, Biggs, Buttar, Courtenay Lord, Montgomery-Smith, and Stevens, and Mr. E. B. Turner. The two who are on panels were Dr. Napier Jones and Dr. Hay (East London).

The Annual Representative Meeting this year, in view of the fact that the scope of the Insurance Act may be so extended as to include in its operations various additional matters—such as the treatment of children and dependants of insured persons, dental treatment, and hospital treatment—instructed the Insurance Act Committee to make a full report, so that the Association might be ready with its policy as to what a National Health Insurance Act should be, not merely from the point of view of the interests of the profession, but also from that of public health and the advancement of medical science. The Insurance Act Committee reported that after fully considering the reference it had come to the conclusion that the subject would entail so considerable an amount of investigation that the work could only be properly done by a committee devoting itself solely to it. It accordingly recommended that a special committee should be appointed by the Council, to consist of the honorary officers of the Association together with nine other members. The nine members elected were Dr. John Adams, Dr. R. M. Beaton, Miss Ivens, M.S., Dr. H. F. Oldham, Dr. L. J. Picton, Dr. F. J. Smith, Mr. E. C. Montgomery-Smith, Mr. D. F. Todd, and Mr. E. B. Turner.

The Council at this meeting also settled the notice convening the Special Representative Meeting on December 4th, and approved the publication of the alternative scheme which is printed in the Supplement of this week.

THE ANTIVENEREAL CAMPAIGN IN GERMANY.

The appointment of a Royal Commission to inquire into the prevalence of venereal diseases in the United Kingdom, their effect upon the health of the community, and the means by which these effects can be alleviated or prevented, seems to make it desirable to summarize shortly the work that is being done and the results that are claimed by the German Society for Combating Venereal Diseases (Die Deutsche Gesellschaft zur Bekämpfung der Geschlechtskrankheiten).

The society has been in existence for eleven years. It was founded by Professors Blaschko and Neisser in October, 1902, with the support and cordial co-operation of the medical and legal professions and of the commercial and other educated classes in the German Empire. In his report of ten years of work (1902-12) Professor Blaschko gratefully acknowledges the help he has received on all sides, and announces that the society has over 5,000 members*—workers and sympathisers—including persons in all ranks of society and representatives of many clubs and associations, municipal bodies, Poor Law guardians, hospitals, and Insurance Commissions, and women of every class. There are branch organizations in thirty-one of the larger towns, whose business it is to keep in touch with the head offices in Berlin, and, by means of lectures, lantern demonstrations, and monographs, to enlighten the darkness of the popular mind on these and kindred matters of hygiene; for it is clearly recognized in Germany that until this ignorance has been dissipated no measures, legal or other, have any chance of success. It is therefore the policy of this society to spread knowledge of a healthy scientific kind, and with this object in view it has held congresses in Frankfurt, Munich and Mannheim, at which questions of the greatest possible public interest and importance were thoroughly discussed, with the result that fresh efforts to instruct the youth of Germany on a still wider basis are shortly to be made.

* The annual subscription paid by a member is 3s.

The society can already claim some practical results. The reservations and strictures imposed by insurance legislation on all venereal patients have been removed mainly as a result of their representations, the number of available beds and special departments for the treatment of sufferers have been sensibly increased, and the objections formerly urged against the allotment of such cases to general hospitals have disappeared. The universities have established chairs of venereology, and have made the subject compulsory in the medical curriculum; special courses of lectures on sexual hygiene are given every term to students of other faculties, and even to the employees of both sexes in factories and workshops, by medical and other experts.

The Prussian Ministry in 1907 passed certain regulations designed to modify the stupid, overbearing attitude of the sanitary police in matters relating to the control of prostitution. These measures strictly followed the lines of procedure laid down in the society's propaganda, and harmonized with its views as to the impossibility of eradicating the traffic by force. At the present time an attempt is being made by the officials of the society to urge the Legislature to penalize more severely the keepers of brothels and those who knowingly or carelessly transmit any form of venereal infection, though the society holds that the orderly lodgement of prostitutes should not be considered an offence in the eyes of the law; it is also taking steps to establish a permanent extra-parliamentary Commission for the guidance of the Legislature itself in all matters relating to sex hygiene. Among the many tasks the members of the society have set themselves, that relating to the elimination of the quack and advertising chemist takes a prominent position, and the present uncompromising attitude adopted towards persons of this class must be largely ascribed to the revelations made by the society in its monographs and pamphlets. Not the least of its successes is the complete conquest made of the whole German press, which is now ranged entirely on its side, and prints, instead of the former dark insinuations which still further obscured the mind of the ignorant public, a frank and open summary of the opinions of the best known experts on many difficult and much debated hygienic problems. The awakening interest on all sides is being fed by publications in weekly and monthly medical and lay journals, and the society has an organ of its own which is sent free to all members, and keeps the head office and the various branches in intimate connexion with each other. A library of modern works on subjects connected with the society's work is at the disposal of any one requiring information for scientific purposes, and there is a large collection of wax models, lantern slides, pictures, and statistical tables which can be borrowed by duly accredited lecturers. So great was the success of an exhibition of these at a recent congress in Dresden, where medical men conducted parties and personally demonstrated the evil effects of venereal disease to over ten thousand of the public, that a scheme for the formation of a permanent transportable museum for the enlightenment of the inhabitants of all the larger towns of the empire is under consideration.

Over six million copies of warning leaflets suited to the youth of either sex have been issued by the society. They are designed to throw light on the hidden dangers of loose living; the information is compressed into ten short rules which can be digested by the least intelligent, and which are designed to contradict certain popular fallacies, as, for example, that it is harmful to a man's health to abstain altogether from sexual intercourse. Other leaflets for the guidance of parents in the instruction of their children can be had for a few pence, and monographs on topics of importance to the community by well known writers can be obtained by the score on payment of a small fee to cover cost of printing.

There is no doubt that the society is doing a most valuable service to the German Empire, and that we shall not be far wrong if, when the time comes, we institute a campaign on similar lines.

CHRONIC INTESTINAL STASIS.

The subject of chronic intestinal stasis and its surgical treatment has been so much before the profession recently that some impatience at return to it may be excusable. But we venture to think that the more such a difficult matter is discussed and the more extensively experience is recorded the sooner will it be lifted out of the realm of the controversial, and become established theory and tried practice, or otherwise. On another page will be found an address by Sir W. Arbuthnot Lane, the chief expositor of the subject, and also a short paper by Professor Seaman Bainbridge, of New York, on statistical studies of his own and Sir Arbuthnot Lane's cases. It is these papers which induce us to ask again for some serious attention to chronic intestinal stasis and its treatment.

Sir Arbuthnot Lane has already, with some frequency and persistence, called the attention of the profession to the long train of symptoms and signs of great range and variety which, he thinks, directly and indirectly result from chronic interference with the "general drainage system of the body." Surgeons, we know, are by no means unanimous in their acceptance of the theory or in their recognition of the sequence of events indicated by Sir Arbuthnot Lane. Whatever may be the first origin of the ileal band, or Jackson's membrane, or Payr's spleno-colic band or the sigmoid adhesions—whether inflammatory, evolutionary, or developmental—there can be no doubt that they are found and that each and all of them may interfere very seriously with the onward course of intestinal contents, and by damming back faecal material cause absorption of toxins with many attendant ill effects. There can be no scepticism or questionings of the truth that chronic obstructive symptoms follow from the presence of these bands. But when we are asked to go further and find that on the broad back of chronic intestinal stasis is laid such a burden as is indicated in the seventeen direct results and nine indirect consequences described in Sir Arbuthnot Lane's address many may perhaps feel that their scientific good nature is being strained. Hitherto, so far as we know, the profession has had to rely more or less on general statements that these things were so. Surgeons all over the world have read with interest his addresses, and should have had ample opportunity and fullness of time to record their experiences and check his results by theirs. We venture to hope that the publication of the details of the cases illustrating the address will lead to other publications, so that the whole body of the profession will be as convinced as the author of the accuracy of his observations, the soundness of his deductions, and the efficiency of the treatment he advocates. We are at present in want of further details as to the pathology of these cases. Professor

Bainbridge's impartial artist has depicted the bands, and the constrictions and dilatations they produce. It would be informing to learn something about the microscopic appearance of the colon and the bacteriology of its contents, and as to the rate at which a bismuth meal travels, say some two or three years after operation, and the nutritional conditions at that time.

The surgical treatment of chronic intestinal stasis may vary. Not every case requires an immediate complete colectomy. Thorough radioscopic examinations with the bismuth meal are necessary to locate the seat of the active cause of stasis; then removal of the appendix, cutting or separation of bands at one or other of the four corners of the abdomen, short-circuiting by ileo-sigmoidostomy, partial colectomy with anastomosis of the ileum and transverse colon (H. J. Paterson) are all surgical procedures to be considered before removal of the whole colon is thought of. We imagine that colectomy will be done only after many months' observation and treatment, and only in exceptional cases. It may be true that the only function of the colon is absorption of water, and that absorption may be completely carried out in the sigmoid and rectum alone (Hey Groves and Walker Hall), and it may be the case that persons who have parted with the colon appear to be none the worse, but indeed much the better for its absence. Nevertheless removal of the whole colon is not an operation to be undertaken without long and serious consideration, and the number of cases of chronic intestinal stasis for which colectomy is required must be, we hope, exceedingly small. Surgery is not concerned with finding out how much mutilation the human organism will tolerate, nor are its triumphs solely those of marvellous technique. A series of successful colectomies should not necessarily lead to more colectomies, but the knowledge obtained should in time result in the adoption of methods of greater conservatism.

What the actual results of the operative treatment of chronic intestinal stasis are we have an opportunity of learning both from the details of Sir Arbuthnot Lane's seventeen cases and from the statistics provided by Dr. Bainbridge. Perusal of the latter's paper will show that he is an enthusiastic supporter of the views of Sir Arbuthnot Lane. His enthusiasm is founded on repeated annual observations, and on the statistical study which he has made of, we presume, cases of chronic intestinal stasis only. The figures are taken entirely from one ward—apparently a female one—and extend over a period of three and a half years. The mortality-rate is astonishingly low, and the results in betterment of the health of the patients appear fully to justify the treatment. Statistics do not appeal to all, but the knowledge of personal friends restored to vigour and happiness weighs mightily, and probably that knowledge is in the possession of many of us.

TROPICAL MEDICINE.

The London School of Tropical Medicine may fairly be congratulated on the success of Mr. Austen Chamberlain and his committee in their efforts to raise a fund sufficient, in his own words, to put the school on a sound footing, and to enable it to pursue its work unhampered by daily anxiety as to ways and means. Nearly two-thirds of the sum asked for has been given in response to their appeal; and as the magnificent work done by the school for medical science and for the welfare of the empire is more and more appreciated, there is little doubt that the rest will in no long time be forthcoming. To those who, like ourselves, have followed the growth of the school from its small beginnings to its present state as a place fully equipped for the treatment of tropical diseases, for teaching and for original research in that province of medical science, its progress within the short space of fifteen years is little short of marvellous. Nothing that he has done has more strikingly shown the statesmanship of Mr. Chamberlain than the clearness with which he understood the intimate connexion between successful colonization of the tropics and the problems of disease. Politicians whose object is to keep themselves or their party in power, and who therefore make the capture of votes their chief aim—and unfortunately they form the vast majority of members of Parliament of all parties—have always treated public health questions as matters of unprofitable sentiment, and many have looked upon colonies as an indifferent parent regards his offspring—troublesome dependants to be turned adrift to shift for themselves as soon as possible. To the initiative of Mr. Chamberlain, inspired by Sir Patrick Manson, is due the birth of a "new learning" in science which has already been fruitful in results of the greatest importance to the natives of uncivilized or half-civilized climes which we have taken under our guardianship, and to those of our countrymen who find a sphere of work in those regions. And in the future it cannot fail to play a still greater part in the prosperity of the nation, and the consolidation of the empire which we have built up. It is sad to reflect how many lives that have been sacrificed in the centuries of struggle which went to the making of Greater Britain might have been saved by knowledge of the kind which has in our day been acquired by the labours of scientific pioneers, and which it is the function of the London School of Tropical Medicine to disseminate.

The hospital and school at the Royal Albert Dock is now the metropolis or "mother city" of a number of similar schools in other countries. Nothing need be said here of the immense development of the study of tropical diseases that has taken place in recent times; our own columns have borne witness to it year by year, and in every medical congress the subject now plays a conspicuous part. It must be a source of legitimate pride to every one of us that in this expansion of the empire of medicine our country has taken the lead.

Elsewhere we give a brief account of the recent enlargement of the London School of Tropical Medicine. The new buildings are now complete and in use. But it is not only in the provision of greater accommodation for students that the school has benefited by the fund raised for its development. The staff has been strengthened and the scope of the teaching has been enlarged. It has become increasingly evident that in order to deal with many of the epidemics and plagues which occur in the tropics reliance must be placed to a large extent on prophylaxis rather than on treatment. Hitherto no adequate provision has been made for the instruction of doctors who intend to seek a field of work in the tropics in the principal problems of sanitation which they are likely to meet. To remedy this deficiency the London School has established a distinct course of tropical sanitation, which will be conducted entirely independently of the ordinary courses in tropical medicine. It is proposed for the present to hold two courses of instruction in the year, each course extending over a period of two months; the teaching will be practical—that is to say,

it will consist of laboratory tuition and demonstrations. Dr. B. H. Webb, of Guy's Hospital, has been appointed bacteriologist and demonstrator, and will have charge of this special course. One of the new laboratories has been assigned for the purpose. It is proposed that two courses shall be given during the year, each extending over a period of two months.

The establishment of a definite and independent system of instruction in tropical sanitation is an important step in the development of the school. While much has been done in the discovery of factors concerned in the causation of tropical diseases, and the results of scientific workers have been imparted to many students, the most profitable application of these researches obviously lies in the direction of prevention. From what has been done by sanitation in Panama to make the isthmus a possible field of operation for engineering skill, which was previously made nugatory by the attacks of minute foes "horsed on the sightless couriers of the air"; in Cuba to stamp out a disease which claimed a large annual tribute of victims, and was always lying in wait for more; in Brazil for the cleansing of seaports which used to be breeding grounds of pestilence; in Egypt and elsewhere for the extermination of a scourge which is held to be accountable for the decay of whole peoples; and in Cyprus, with the help of Sir Ronald Ross, may be gathered what can be effected by well-directed efforts for the removal or suppression of the causes, direct and contributory, of disease. In scientific sanitation lies the hope of a healthier future for dwellers in tropical climes, and the London School of Tropical Medicine deserves the thanks, not only of this country, but of every nation which is striving to have "a place in the sun" of the tropics, for the good work it has already done, and for the new work which it has now undertaken.

WAR IN AUSTRALASIA.

FROM a telegram received from the New South Wales Branch of the British Medical Association it appears that the hope expressed early in the year that an understanding would shortly be reached with the friendly societies in the State has not been realized. The telegram indicates that in consequence of the rejection of the proposed agreement members of the profession in New South Wales have been compelled to send in their resignations of friendly societies' appointments, and that already 96 per cent. of the profession have taken that step. The profession in the State is prepared to fight to a finish, and, if necessary, itself to establish provident medical associations. The Prime Minister announced some time ago that a scheme of national insurance was included in the Government programme, and we gather that it is probable this scheme will now be launched. The position which, through the British Medical Association, the profession in Australasia has won is so strong that it looks forward with confidence to the issue of its struggle with the friendly societies. It turns to the profession in this country for support, and this we do not doubt will be loyally given. A Warning Notice with regard to friendly society appointments in New South Wales has been for some time issued by the Association through the JOURNAL, and now extends to the whole State. The notice has been published at the request of the New South Wales Branch, given through the Honorary Secretary, Dr. R. H. Todd (British Medical Association Buildings, 30–34, Elizabeth Street, Sydney), and the Medical Secretary (429, Strand, London, W.C.) is also in a position to answer inquiries addressed to him. But there can be no hesitation in saying that no member of the profession in this country is justified in considering for a moment any application made by friendly societies in Australasia, and that it is the bounden duty of every one of us in the British Isles to refrain from being made a pawn in the game which the profession in Australasia is ready to bring to a successful conclusion if it receives the moral support of the profession at home.

ROYAL COMMISSION ON VENEREAL DISEASES.

THE promise made by the Prime Minister on August 11th to institute an inquiry into the public health aspect of venereal diseases has been redeemed by the appointment of a Royal Commission with Lord Sydenham as chairman. The other members are Sir David Brynmor Jones, K.C., M.P., Mr. Philip Snowden, M.P., Sir Kenelm E. Digby, G.C.B., K.C., Sir Almeric FitzRoy, K.C.B., K.C.V.O., Sir Malcolm Morris, K.C.V.O., Sir John Collie, M.D., Dr. Arthur Newsholme, C.B., Chief Medical Officer to the Local Government Board, Canon J. W. Horsley, the Rev. J. Scott Lidgett, Dr. F. W. Mott, F.R.S., Mr. Ernest Lane, F.R.C.S., Mrs. Scharlieb, M.D., Mrs. Creighton, and Mrs. Burgwin. Mr. E. R. Forber, of the Local Government Board, will act as secretary to the Commission. It will be noted with some surprise that the Commission does not contain any representative of the Army Medical Department, which has a very extensive experience of venereal disease, and of the advantages of early hospitalization, and of modern methods of treating syphilis. The results of such treatment in the army are of special value owing to the complete disciplinary control of every case. We hope that it is not too late to repair this omission. Lord Sydenham, better known perhaps as Sir George Clarke, and as Governor, successively, of Victoria and Bombay, was originally an Engineer officer, and saw service in the Egyptian and Soudan expeditions; he was a member of the Special Committee appointed in 1904 for the reconstitution of the War Office after the South African war. The reference to the Commission is "to inquire into the prevalence of venereal diseases in the United Kingdom, their effects upon the health of the community, and the means by which those effects can be alleviated or prevented, it being understood that no return to the policy or provisions of the Contagious Diseases Acts of 1864, 1866, 1869 is to be regarded as falling within the scope of the inquiry." As long ago as 1899 Colonel Long presented a memorial from the British Medical Association and the Royal Colleges of Surgeons in England and Ireland praying for an inquiry. At the International Congress on Venereal Diseases held in Brussels in that year, resolutions were passed urging the governments of all countries to appoint commissions of inquiry, and condemning legislation of the nature of the Contagious Diseases Acts. Last year a discussion, extending over four meetings, took place at the Royal Society of Medicine; it turned on the importance of syphilis as an incapacitating disease, and as a producer of certain nervous disorders. In June last Sir Malcolm Morris published an article in the *Lancet*, asking for the appointment of a Royal Commission, and drawing attention to the fact that syphilis was not infrequently contracted innocently. A few weeks later a letter signed by the Presidents of the Royal Colleges of Physicians and Surgeons, the Regius Professors of Medicine in Oxford, Cambridge, and Dublin, and the President of the British Medical Association, together with some thirty leading representatives of the medical profession, was published in the *Morning Post*, and this appeal was formally endorsed by the Representative Meeting of the British Medical Association, which adopted a resolution expressing its sympathy with the recent appeal made in the press by Sir Thomas Barlow and his co-signatories in favour of a more candid recognition by the public of the dangers of venereal diseases. Lord Morley, in speaking at the dinner given by the Government to the International Medical Congress in August, said that there would be sheer moral cowardice in shrinking from a large

and serious inquiry into the extent, causes, and palliatives of this hideous scourge. During the Congress a joint session of the Sections of Dermatology and Syphiligraphy and of Forensic Medicine was held to discuss the subject, and two resolutions were then passed which were subsequently adopted at a plenary meeting of the Congress. These resolutions recognized the ravages wrought by syphilis on the health of the community, deplored the inadequacy of the existing means for checking its dissemination, and called upon the Governments of all countries (1) to introduce a system of confidential notification of the disease to a sanitary authority whenever such notification does not already obtain, and (2) to make systematic provision for diagnosis and treatment of all cases of syphilis not otherwise provided for. There can be no doubt about the importance of the subject, and the results of the researches of Dr. Noguchi demonstrated to the Royal Society of Medicine last week,[1] showing that the spirochaete of syphilis actually flourishes in the brain in general paralysis, and is present in at least some cases of locomotor ataxia, can only serve to strengthen the opinion that the dissemination of this disease, striking man down, as it does, long after his hot youth is past and afflicting the innocent as well as the guilty, urgently calls for concerted action. The paramount importance of syphilis, however, will not, we gather from the announcement made, be allowed to obscure the remoter dangers of gonorrhoea, which, as gynaecologists have now fully established, may be the cause of salpingitis and, in consequence, of sterility and prolonged ill health.

TWO NOTABLE ANNIVERSARIES.

In honour of the famous anatomist Bartolomeo Eustachio festal celebrations were held at his birthplace, San Severino nelle Marche, near Salerno, in September, under the patronage of the Minister of Public Instruction, Signor Credaro. They extended over nearly the whole of the month (7th to 25th), and a congress of medical men of the district was held on the 14th, 15th, and 16th. Among those who took part in the ceremonies were many of the leading men of science in Italy. A marble statue, towards the cost of which subscriptions were received from the King of Italy and the University of Rome, in which Eustachius was professor, was unveiled with appropriate rites in the Civil Hospital; a bronze bust by Ercole Rosa, the gift of the Marquis Luzzati, was also presented, with an appropriate speech by Professor Temistocle Della Vedova of Milan. The city of Rome has decided to affix a marble tablet to the anatomist's house in the Piazza SS. Apostoli; it is now the Palazzo Guglielmi. Little is known of the life of Eustachius. Authors differ as to the date of his birth, that usually given being 1520. In view of the recent celebration it seems possible that recent research may have fixed it as 1513. He began his professional career as private physician to the Duke of Urbino; then he went with Cardinal della Rovere to Rome, where he was professor of anatomy in the Sapienza. He died in 1574, when he was on a journey to Fossombrone, whither he had been summoned to the sick bed of the Cardinal. The name of Eustachius is now known to the profession mainly, if not solely, as the discoverer of the tube or, more correctly, trumpet (*tuba*) which bears his name. He was the first who made an accurate study of dentition. But an unkind fate denied to Eustachius the glory which he ought to have shared with Vesalius of being known as the reformer of anatomy. His *Anatomical Engravings* were completed in 1552, nine years after Vesalius's great work was first printed. They were engraved on copper by himself, and are said to be the first anatomical plates ever produced by this process. Though the text of the work is lost, the plates prove that Eustachius had dissected the whole body with the utmost diligence, and had spared no labour to give accurate views of the shape, size, and relative positions of the various organs. For some reason—probably because they were incomplete — the author did not publish them, and on his death in 1574 they found their way into the Vatican Library, where they lay hidden from the world for nearly a century and a half. When they were found they were handed over by Pope Clement XI to his physician, Lancisi, who published them in 1714. A more correct edition was published by the great Dutch anatomist, Albinus, in 1744. A parallel to this long loss of fine anatomical plates is found in the case of Leonardo da Vinci, whose drawings were found, centuries after his death, in the Ambrosian Library, Milan. They are now in the Royal Library at Windsor. Eustachius studied the intimate structure of organs by means of glasses, and he used other methods of examination, such as maceration of tissues in different fluids, injection, and desiccation. The figures show, as was pointed out by Lauth, that if Eustachius himself had been able to publish them, anatomy would have attained the state it reached in the eighteenth century two hundred years earlier. But they lay forgotten in the papal library, and thus celebrity has been gained by others whose names would otherwise have been known only by the verification of the discoveries of Eustachius. The other anniversary is that of Andreas Vesalius, who was born at Brussels on the last day of 1514. The medical profession and people of Belgium are preparing to celebrate the quatercentenary of the event. The career of the "Luther of Anatomy," as he has been called, is too well known to need rehearsing here. Disgusted by the controversies in which his new views involved him, he gave up his chair at Padua in 1544; and although he afterwards lectured, first at Pisa and then at Bologna, he gave up anatomy, and in a fit of passion threw his manuscripts into the fire. These included the edition of Galen which he used in lecturing, with numerous marginal notes of original observations; a volume of therapeutic formulae; many original notes on drugs; and a paraphrase of Rhases in which he collated the text of the Arab physician with the Greek writers. He accepted an offer of Charles V to become his chief physician, and continued to hold the same office under Philip. His brilliant career ended in darkness and misery. Whether he was denounced to the Inquisition for opening the body of a nobleman in which some flicker of life was supposed to remain, or whether he could no longer breathe the stifling intellectual atmosphere of the Madrid Court, is uncertain. At any rate, he went on a pilgrimage to the Holy Land, and on the return journey was shipwrecked on the island of Zante, where he died of starvation in 1564.

THE EXECUTIONER SURGEON.

Within the past few days Mr. Filson Young, writing in the *Pall Mall Gazette* on the death of the ex-hangman Berry, has made the curious suggestion that "death at the hands of the law should be regarded as a major scientific operation, and as such entrusted to the medical officer." We are doubtful if doctors will be duly grateful for this delicate suggestion. Molière, indeed, in the graduation ceremony at the end of the *Malade Imaginaire*, includes among the privileges conferred by the doctor's diploma the power *occidendi impune per totam terram*, but even he did not formally propose that they should serve as hangmen. Mr. Filson Young has tried to go beyond the great master of antimedical satire, but his joke is not altogether in good taste. Yet, silly as it is, some point might have been given to it had Mr. Filson Young known that in former days there were certain countries in which the public executioner practised surgery. It is not strange that the mediaeval executioner found the transition to surgery easy and alluring, for his practical knowledge of anatomy must have been considerable. To

[1] British Medical Journal, October 25th, p. 1100.

sever the head rapidly and neatly from the trunk of his kneeling victim needed skill as well as strength, and the executioner who bungled his blow ran the risk of being treated summarily by the spectators, who would express their appreciation of his blunder with that brevity and vigour with which the erring referee at a modern football match is not unfamiliar. But the mediaeval executioner's sphere was far from being confined to the cervical region. To lop off finger by finger, to amputate the hand and foot, to cut strips of skin off a prisoner's back, to stretch on the rack, to draw and quarter, all required some practical skill, which was turned to good account when the sentence had been executed, and the mutilations inflicted called for surgical aid. Kristian Carøe[1] has lately given a historic account of the executioner as a surgeon in Denmark. He was sometimes a kindly, religious man, who lived a retired life, and seldom associated with others than those of his own calling. Intermarriages in the families of executioners were, therefore, frequent, and successive generations of the same family adopted the calling. Whatever its drawbacks, monotony cannot have been one of them, for in addition to the duties already mentioned, the executioner had to burn offenders at the stake, bury women alive, or drown them in a sack, brand with a hot iron, manipulate the stocks, examine for witchcraft, expel prostitutes from the town, bury suicides, keep the streets and chimneys clean, and capture and kill stray dogs and swine. Yet this combination of occupations seems to have left him time to extend his activities yet further; and surgery became his hobby. Probably little would have been recorded of the part he played as surgeon had he not incurred the jealousy of his competitor, the bona fide surgeon or "bartskaer," whose complaints to the authorities of the illegitimate surgery of the executioners are frequently to be found in the State archives. Side by side with these complaints are petitions, accompanied by testimonials, from the executioner surgeon for leave to practise. In some cases it was refused, and in others permission was granted to set fractures, to reduce dislocations, and to treat external diseases, provided internal diseases were not tampered with. The features distinguishing an "external" from an "internal" disease do not appear to have been defined, though syphilis was regarded as an external disease; and the executioner was doubtless in no hurry to have the definition made. One argument frequently advanced by the executioner in his application for leave to practise surgery was his devotion to the poor, whose ailments he cured for little or nothing. But his practice was not always confined to the lower classes, and in 1638 the executioner of Glückstadt was even called in to attend Prince Christian, heir to Christian IV, who in 1627 had fractured his leg. In spite of varied treatment the wound constantly broke out afresh, and fistulae formed. The medical attendant to the Royal household, Henrik Kuster, in a Latin letter to a friend, complains bitterly of the affront to his profession in the favour shown to "a quack who is as little qualified to heal as to play on the lyre. . . . Who would be so shameless as to meet such a spawn of mankind in consultation? Alas, for those who fall into the hands of these quacks who are not fit to treat a louse!" But the Royal physician's gifts were evidently in the direction of a vigorous literary style rather than therapeutic; and his patient seems to have taken many years to find this out. Early in the eighteenth century Henrik Dreyer, an army surgeon, waged war on the irregular practices of contemporary executioners. Apparently he considered the claim to consanguinity of the two professions should be limited to a literal interpretation of the term. His attempt in 1718 to destroy the surgical practice of Margrethe Guldbrandsdatter, the executioner's wife and partner in practice, proved abortive; but five years later he secured the infliction of a fine on his competitor. The executioner's successor, Augustinus Pflug, was unfortunate enough to be murdered by his wife's paramour, and it fell to the lot of Dreyer to make the necropsy. His feelings on this occasion do not seem to have been recorded.

[1] *Medicinsk-Historiske Smaaskrifter.* Edited by Vilhelm Maar. Vilhelm Tryde's Forlag. Copenhagen.

ANCIENT INDIAN INITIATION INTO MEDICINE.

It is held by Professor von Oefele that the Hippocratic oath is of Egyptian origin, and was introduced into Greece by men who had gone to learn medicine in Egypt and had been obliged to submit to rites of initiation before solemn investiture with the powers of what we should call a qualified practitioner. A description of such an initiatory ceremony is given in the *Sushruta Samhita*, a translation of which by Kaviraj Kunja Lal Bhishagratna was reviewed in the JOURNAL of June 14th, 1913. Only students of the three "twice born" castes were accepted. The ritual was elaborate. A Brahman preceptor should initiate a disciple or student in the following way: "A square sand cushion or platform, measuring a cubit in length and breadth, should be laid out on a plot of smooth, level, and sacred ground under the benign influence of any auspicious phase of the moon or astral combination such as the 'Karanam,' etc., and in a direction of the compass which is held most auspicious to that end. The cushion or the platform should be plastered over with a solution of water and cow-dung, and blades of Kusha grass should be strewn over it. Then the gods, the Brahmanas, and the physicians should be worshipped with oblations of flowers, fried paddy, gems, and sun-dried rice. Then, having drawn straight lines across the Sthandilam, so as to meet the top of the furthest side of the square, and having sprinkled over them with holy water, the preceptor should lay down a blade of Kusha grass tied up in the form of a knot, known as the Brahmana, along the side of the sacred cushion to his right, and kindle the sacred fire close to his seat. Then, having soaked the twigs of the four sacrificial trees of Khadira, Palasha, Devadaru, and Vilva, or of Vata, Oudumvara, Ashvattha, and Madhuka, in curd honey and clarified butter, he should perform the rite of Homa, according to the rules of a Darvi Homa ceremony. Then libations of clarified butter should be cast into the sacrificial fire in honour of each of the gods and Rishis (celestial physicians), invoked by repeating the Svaha Mantra, and the disciple should be made to do the same." Having thrice walked round the sacrificial fire, and having invoked the fire god to bear testimony to the fact, the preceptor administered the oath in which parts of the Hippocratic formula can be recognized. Addressing the disciple he said: "Thou shalt renounce lust, anger, greed, ignorance, vanity, egotistic feelings, envy, harshness, niggardliness, falsehood, idleness, nay all acts that soil the good name of a man. In proper season thou shalt pare thy nails and clip thy hair and put on the sacred cloth, dyed brownish-yellow, live the life of a truthful, self-controlled anchorite and be obedient and respectful towards thy preceptor. In sleep, in rest, or while moving about while at meals or in study, and in all acts thou shalt be guided by my directions. Thou shalt do what is pleasant and beneficial to me, otherwise thou shalt incur sin and all thy study and knowledge shall fail to bear their wished for fruit, and thou shalt gain no fame. If I, on the other hand, treat thee unjustly even with thy perfect obedience and in full conformity to the terms agreed upon, may I incur equal sin with thee, and may all my knowledge prove futile, and never have any scope of work or display. Thou shalt help with thy professional skill and knowledge, the Brahmanas, thy elders, preceptors and friends, the indigent, the honest, the anchorites, the helpless and those who shall come to thee (from a distance), or those who shall live close by, as well as thy relations and kinsmen (to the best of thy knowledge and ability), and thou shalt give them medicine (without charging for it any

remuneration whatever) and God will bless thee for that. Thou shalt not treat medicinally a professional hunter, a fowler, a habitual sinner, or him who has been degraded in life; and even by so doing thou shalt acquire friends, fame, piety, wealth and all wished for objects in life and thy knowledge shall gain publicity." Some of these injunctions are excellent, and the promise of prosperity to be acquired by observance of them seems to show that the ancient Indian doctor had no panel or non-panel difficulties to contend against. The final touch, "Thy knowledge shall gain publicity," is quite modern.

THE HISTORY OF "SCRAPIE," SHEEP DISEASE.

Neither Sir James Murray's *New English Dictionary* nor Wright's *English Dialect Dictionary* give "scrapie," the disease amongst sheep which is causing so much anxiety among flockmasters on both sides of the Border at the present time. The expression "sheep-scrape" is found, but it has nothing to do with the disease; it simply signifies the bare place on a hillside where the turf has been scraped off by sheep's feet. "Scrapie," the disease, has its origin in the fact that one of the chief symptoms of the developed disease is the itchiness which causes the affected animal to rub itself against projecting surfaces as well as to bite at its wool. Sir Stewart Stockman, whose address to the flockmasters of the Borders at St. Boswells is noted elsewhere (p. 1183), has found a reference by Arthur Young in his *Annals of Agriculture* to what is now called "scrapie," but was then apparently named "the rubs." Writing of the year 1799, Young said: "I lost from 40 to 50 ewes by a complaint which has been for some years fatal to this neighbourhood, and called by the shepherds the 'rubs' or the 'rubbers,' from their seeming to rub themselves to death, by which some very capital flocks of Norfolk, in the vicinity of Bury, have lost several hundreds." The first mention of the disease under the name of "scrapie" seems to have been in 1853; it was then present, it has been thought, in a noted flock of half-bred Cheviot and Leicester sheep at a farm on the Borders which Sir Stewart Stockman calls A. A farmer in the neighbourhood at B bought two tups at the A sale and allowed them to run with his ewes; the ewes apparently did not contract the disease, but it appeared in 1856 in the stock got by these tups—that is, in their progeny when about 2 years old. It is this character of the disease and its late appearance which have led, no doubt, to the notion that it is hereditary. It is possible that it may be transmitted by congenital infection, but this, of course, is not the same thing as heredity; indeed, Sir Stewart Stockman has been able to assure the flockmasters that the malady is contagious, and therefore capable of being prevented. "Scrapie" is known on the Continent, in France and Germany, under different names, but foreign sources of information have very little to say about its pathology or its prevalence. It is stated, however, that it was brought into Germany by merino sheep, a statement of some importance when taken in association with the supposition that it reached England also through the merinos; it may, so far as is definitely known, have been introduced into this country either by the Saxon or the Spanish merinos or from quite another source. One other fact about the history of the disease which is of importance is its disappearance from Norfolk, after having been prevalent there at one time. A probable explanation is that the Norfolk farmers bred chiefly for the production of mutton, and that, as the disease does not appear before the age of two years, the animals were slaughtered before the "scrapie" age, and the risk of infection was in consequence greatly reduced or done away with altogether. Our present knowledge of the malady seems to point to its being exclusively an ovine disorder; there is, at any rate, no evidence that it has any bearing on human pathology, although, in view of what is now known of other diseases, it is hardly safe to be dogmatic.

PELLAGRA IN AMERICA.

A conference on pellagra, held at Spartanburg, South Carolina, on September 3rd, was attended by more than 200 doctors from various parts of the country. It was opened by Dr. W. P. Chapman, President of the Spartanburg County Medical Society. Dr. J. W. Babcock, head of the State Asylum for the Insane, introduced Dr. L. W. Sambon, who read an address in which he gave an account of his work on pellagra. He paid a tribute to the work of the Thompson-McFadden Commission in that city, and expressed his belief that pellagra would finally disappear entirely or be brought under control. Dr. McNeal read a report on observations in Spartanburg County, from which it appeared that although sporadic cases of pellagra had probably existed in the Nineties, it was in 1908 that the first case was verified. The disease was most commonly found among the women and children of the cotton mill villages of that section of the State. Poorly nourished people were not so immune as those in better circumstances. It had also been found that pellagrins were most numerous in communities where adequate means were not provided for the disposal of human excrement. The report stated that no specific cause of the disease had been recognized. During a discussion which followed, Dr. C. H. Lavinder recommended the establishment of sanatoriums for pellagra, and Dr. G. M. Niels, of Atlanta, speaking from his experience in treating the disease in Georgia, expressed the belief that good results would follow the administration of an abundance of protein foods. Dr. Sambon was entertained at an informal "smoker," which was attended by the Governor of the State and many leading citizens. Mr. Hearon, in responding to the toast "Spartanburg as a proper location for a national hospital for the treatment of pellagra," dealt with the endeavour made by that community to secure a hospital endowed by the national Government. Dr. Sambon complimented the American people on the great work of prevention accomplished in Havana, Cuba, and in making the Panama Canal a region habitable by white men. He criticized Great Britain as being too slow in making its tropical provinces fit places for white colonists. Dr. Siler said the United States should make appropriations for the investigation of unknown diseases and hoped the Government would establish a pellagra hospital at Spartanburg where the great research work started by the Thompson-McFadden Commission would be continued. Dr. J. W. Babcock, in speaking of pellagra as a national problem, estimated that there were 30,000 cases in the United States; forty States had recognized the disease within their borders; it was also prevalent in Panama, Porto Rico, the Philippines, and the Sandwich Islands. Pellagra was no longer a national but an international disease. Dr. J. Adams Hayne, Secretary of the State Board of Health, speaking on pellagra as a State problem, said a thorough investigation proved that it existed in every county of the State. Cases occurred also on the coast, according to Dr. Wilson of Charleston, and, according to Dr. Whaley of the same place, the disease was prevalent in North Carolina. Dr. Lavinder said that the pellagrin should be treated like the tuberculous sufferer. If he were removed from the endemic zone in the early stages, placed in more healthful surrounding and given plenty of nutritious food, he would recover permanently. It was the general feeling of the meeting that the Government should establish hospitals for the study and treatment of the disease. Senator G. W. Sullivan, of Anderson County, said that at the next session of the General Assembly he would introduce a bill and make a fight for a substantial appropriation. It was announced that Dr. Siler, head of the Thompson-McFadden Commission, would accompany Dr. Sambon and Mr. Ernest Schwartz, artist and entomologist, in the expedition to certain West India islands to investigate pellagra at the invitation of the several Governments.

THE TROMBONE AS A THERAPEUTIC AGENT.

THE power of music to soothe sufferers from some mental ailments is generally recognized. We read in Holy Writ how David played on the harp before Saul when the evil spirit was upon the King. Much has been written on the healing power of a concourse of sweet sounds, and some twenty years ago the St. Cecilia Guild was founded in London by the late Rev. F. K. Harford, Minor Canon of Westminster Abbey, with the object of testing the effect of music on the sick. Some experiments were made in one or two London hospitals, but the movement, which was actively supported by Sir Andrew Clark, soon came to nothing, owing mainly to indifference on the part of the public, and perhaps also to want of faith in some of the promoters. It was an interesting experiment and deserved a better fate. The music employed was soft, but it appears that loud sounds may be effectual in certain conditions. This may be gathered from what we read of the method used by Auguste Henri Jacob, better known as "Le Zouave Jacob," a healer of great notoriety in the days of the Second Empire, who recently died at the age of 85. He was a bandsman in the Zouaves of the Imperial Guard, and became noted for his skill as a player on the trombone. When he became conscious of his power as a healer the trombone was the instrument he used in treating the sick. So potent was his blast that patients crippled by rheumatism are said to have got up and walked after one application. It did not always answer, for Marshal Canrobert only succeeded in half raising himself from his bed. It may be asked when the remedy proved effectual whether this was the effect of the shock caused by the sound, or of a special charm in the instrument, like that in the lyre with which Orpheus made trees and stones dance to his playing; or if it was due to the sufferer's desperate efforts to escape from torture such as that which vexed the nervous system of Hogarth's "Enraged Musician"? In any case it might be worth while to make an experimental test of the trombone as a therapeutic agent. Possibly the bagpipe might also be tried, and we would suggest that it might be well to begin with a case of difficult micturition. Does not Shakespeare, through the mouth of Shylock, tell us that there are some who, "when the bagpipe sings i' the nose, cannot contain their urine"? The Zouave Jacob was more single-minded than most faith healers, for he never took fees. This fact saved him on the many occasions when he was prosecuted for illegal practice. He lived by the sale of his photograph. For a long time before his death he had been forgotten except by a faithful few.

THE CINEMATOGRAPH IN SANITARY EDUCATION.

THAT the cinematograph exercises a very far-reaching influence over the mind of the public has for some time been a recognized fact; and for this reason it constitutes an excellent medium for the spread of information, imparted in the manner that appeals most strongly to the taste and imagination of the man in the street. It does this more effectually than books or lectures, for, as Horace said long ago, "Segnius irritant animos demissa per aurem, Quam quae sunt oculis subjecta fidelibus." There is every reason, therefore, to congratulate the proprietors of the Electric Palace, Marble Arch, who, at the instigation of the Public Health Committee of the Marylebone Borough Council, introduced into the course of their ordinary programme on October 23rd, 24th, and 25th, a striking series of photographs illustrating the part played by the common house-fly as a carrier of disease. The film showed every stage in the development of the fly, from its birth in a heap of garbage to its death in the food prepared for human beings; and whilst affording the audience an opportunity of learning the various ways in which contagion may be spread by these insects, gave a most realistic picture of the insanitary conditions prevailing in many large towns. This experiment on the part of the Electric Palace opens a new sphere of usefulness for the cinematograph, which may possibly become a powerful ally of the doctor in his crusade against disease and dirt.

A TUBERCULOSIS SCHEME FOR A RURAL COUNTY.

THE county tuberculosis officer has put forward a scheme for the treatment of tuberculosis in the administrative county of Hertford. As this county is mainly agricultural, containing a population of 311,284 persons, scattered over an area of 404,523 areas, the scheme may be of value as a guide in other similar counties. It proposes the establishment of a central dispensary in Hertford, and four branch dispensaries in a corresponding number of the larger towns of the area, and seven visiting stations, to be increased later on if need be, conveniently situated in seven other districts. It is also proposed to establish an institution to which non-pulmonary as well as pulmonary cases would be admissible, and where sanatorium as well as hospital treatment would be obtainable. Of its 140 beds, 60 would be regarded as sanatorium beds for early cases of pulmonary tuberculosis, 40 as beds for acute and advanced cases of this disease, and 20 as children's beds; the remaining 20 beds would be used partly for keeping cases under observation, and partly for the treatment of adult cases of tuberculosis other than phthisis. A motor ambulance would be provided for taking the patients to and from this institution, and examination of suspected sputa would be conducted gratuitously. Tuberculin treatment would be commenced at the sanatorium, and followed up at the dispensaries, the same methods of administration being adopted in both instances. The organization of a care committee is also included in the scheme.

THE AUSTRALASIAN MEDICAL CONGRESS.

THE Australasian members having expressed a strong desire that the parent Association should be represented at the Australasian Medical Congress promoted by the Branches of the Association in Australia and New Zealand, to be held in Auckland in February next, the Council accepted the recommendation of the Finance Committee that the invitation should be accepted and that one of the honorary officers be asked to act, and at the request of the Council its Chairman, Dr. Macdonald, consented to accept the duty. In concluding its last annual report the Council of the New South Wales Branch expressed the satisfaction with which it noticed the steady growth of the influence of the Association in public matters in which the medical profession is concerned, and the recognition afforded to it by the Government and public bodies. During the year it had been consulted on medical matters both by the State and Commonwealth Governments. The proposals which are now taking definite shape in several States of the Australasian dominions for the institution of systems of national insurance will give particular significance and value to Dr. Macdonald's visit. He has been Chairman of the Council throughout the whole of the agitation in this country with regard to the insurance scheme, and will be able to advise our Southern brethren from his experience of events in this country, and his intimate acquaintance with the provisions and administration of the Insurance Acts. His visit, we do not doubt, will tend to draw closer the bonds of union, and help still further to consolidate the influential position which the Association has attained in Australasia. As the congress in Auckland begins in February, it will be necessary for Dr. Macdonald to leave England shortly after the Special Representative Meeting.

England and Wales.

[*FROM OUR SPECIAL CORRESPONDENTS.*]

WALES.

Voluntary Aid Arrangements at Senghenydd.

At the time of the colliery disaster which occurred on Tuesday, October 14th, there were eleven Glamorgan County voluntary aid detachments organized in the Senghenydd district, ten from the British Red Cross and one from the St. John Ambulance Association. Two of the local doctors—namely, Dr. P. T. Burke of Abertridwr and Dr. Philip James of Senghenydd—are commandants of detachments. The Glamorgan County Association's lady vice-president for the district is Miss Sybel Corbett of Pwllypant, who is also a lady chairman of the British Red Cross Society in Glamorgan, and under this lady, with the consent and approval of Lord Merthyr of Senghenydd, on behalf of the colliery authorities, the voluntary aid arrangements were organized, and Lord Merthyr further gave his consent to any reasonable disbursements that might be required for the sufferers. Lieutenant-Colonel Sheen, R.A.M.C.(T.), county director of voluntary aid in Glamorgan, acted, at Miss Corbett's request, in an advisory capacity. Superintendent Davidson, of the St. John Ambulance Association, rendered much valuable assistance.

Details of Organization.

The organization was divided into two parts, the pithead arrangements and a temporary hospital established in a hall in the village known as Aberdare Hall. The pithead arrangements were in charge of Mrs. P. T. Burke and the temporary hospital in charge of Mrs. Philip James; both these ladies command voluntary aid detachments. Associated with them in medical charge were Dr. Burke at the pithead and Dr. James at the temporary hospital. These two gentlemen, with Drs. Donaldson, Watson, Richards, Mackenzie, and Thomas, provided a continuous medical service day and night. Dr. Ivor Davies, of Cardiff, who also commands a voluntary aid detachment, was associated in the care of the temporary hospital, where he was on duty practically continuously for the first three days following the disaster.

The principal duties of the voluntary aid workers were preparing food and stimulating drinks for the exhausted rescue parties and in caring for any injured, and particularly for those "gassed"—that is, suffering from carbon monoxide poisoning.

The pithead stations were three: the "York Cabin," a small hut close to the top of the shaft, used as a food station; a carpenter's shop, also close to the shaft, used as a first-aid and food station; and rooms in the colliery offices near by used as a food station. The temporary hospital was equipped with half a dozen beds, and two fully trained nurses were engaged for day and night duty. From the temporary hospital, also, was sent out such voluntary aid assistance as might be required by those living in the village. All the stations were distinguished by large printed labels on their doors, and duty rosters were also posted on the doors showing dates, names, and times of going on and off duty. A record was also kept of casualties attended to and of those fed.

With regard to who should do the work, the principle was followed of first calling upon those members of voluntary aid detachments who lived in or near Senghenydd; others were summoned (by telegraph when necessary) from Cardiff and adjacent places as required. There was naturally a little confusion at the outset, but the work soon settled down and was conducted in an orderly, disciplined manner.

The pithead work was particularly arduous, going on day and night. At the temporary hospital there were three or four cases; more on the first three days, as all the rescued men were brought there, but the majority were able to leave in a few hours.

Observations upon Cases Treated.

A considerable number of the 489 men brought to the surface two hours after the explosion suffered from burns, shock, and the effects of the after-damp poisoning. These were treated by the before-named local practitioners, and afterwards either walked or were assisted to their homes. Several of the more seriously injured were taken by special train to Cardiff and thence to the King Edward's Hospital. One died on the way and three have since died at the hospital and one at home. One of the most distressing deaths was that at the pithead of a man who came to the top with a cageful of mates. They were at once surrounded and congratulated by their friends. This proved too much for one poor fellow. He was given a bottle of water, and after drinking gratefully from this fell to the ground, and upon examination was found to be dead.

Eighteen men were subsequently rescued nearly twenty-four hours later. These were found, some conscious, others unconscious, lying near many dead bodies. The rescued men were first treated in the mine and then brought to the surface. All showed the usual effects of carbon monoxide poisoning, notably the cherry-red colour of the skin. Artificial respiration and administration of oxygen had to be resorted to in several cases for a considerable time. In this connexion it may be mentioned that in some cases, owing to marked rigidity of the arm, Schäfer's method of artificial respiration was found to be the most suitable, and permitted the administration of oxygen at the same time.

All were taken to the temporary hospital afterwards, but, with the exception of three, were not detained. One of the patients left at the hospital suffered from repeated attacks of cardiac failure and acute pulmonary congestion. He responded well to the usual treatment and oxygen, but unfortunately pneumonia set in later, from which he has been making a slow recovery. Almost all have showed erythematous patches, very sharply outlined and of a bright red colour. These were situated for the most part upon the back and buttocks, and attended with considerable swelling, and in some instances oedema. These patches were intensely painful, and when situated upon the buttock made lying impossible on the side. They were also painful to touch, but invariably were anaesthetic to painful impressions. In almost all cases the hair follicles stood out prominently in these patches of erythema.

Many of the rescued men suffered from peripheral neuritis, affecting the feet in most instances, but the arm in one leading to wrist-drop. A curious mental condition characterized by stupor and restlessness was observed in many.

A full account of the clinical aspect of the cases and subsequent progress will be published in due course.

The Red Cross in Civil Life.

This would seem to be the inception of a movement which is likely to be of great service in giving first aid in cases of national disaster, and to afford valuable training of a practical character to members of voluntary aid organizations. In other nations such use of voluntary aid from Red Cross Societies and other bodies is well established and utilized. It requires financial assistance and co-operation between employers of labour and others on the one part and voluntary aid organizations on the other. If established, it cannot fail to be of great benefit to the community.

LONDON.

London County Council.

Increased Remuneration of Asylums Medical Officers.

Only a week ago it was reported in the British Medical Journal (October 25th, p. 1112) that the Metropolitan Asylums Board proposed to increase the remuneration of assistant medical officers in the hospitals under its control. One of the reasons given was that the scale in the London County Council's asylums service was higher. At the meeting of the London County Council on October 28th, however, the Asylums Committee reported that it had adopted an increased scale of remuneration. The committee stated that it had experienced lately great difficulty in securing the services of assistant medical officers, and it had become apparent that steps must be taken to improve and render more attractive the positions of the assistant medical staff in the London asylum service. The scale of remuneration for assistant medical officers had not provided hitherto an annual increment for any grade except the first. The fifth and sixth assistants received £170 a year each, the fourth £190 a year, the

third £210 a year, and the second £250 a year, in each case with board, lodging, and washing, valued for superannuation purposes at £90 a year. The first assistant received an annual salary of £310 a year, rising by £25 a year to £410, with the same residential emoluments. The amended scale now adopted was as follows: First assistant medical officer, commencing salary £350, rising by annual increments of £25 a year to £450; second assistant medical officer, £290, rising by annual increments of £10 a year to £330; third, £250, rising by £10 a year to £280; fourth, £220, rising by £10 a year to £250; fifth assistant medical officer, and all appointments under, £200, rising by annual increments of £10 to £220. The salaries included board, lodging, and washing in each case. The committee stated that the present expenditure on salaries for assistant medical officers amounted to £11,535 a year, and the amended scale involved an immediate increase of £1,620, or just over 14 per cent.

Treatment of Tuberculosis.

Owing to pressure of other business the Council again deferred consideration of the question of the treatment of tuberculosis in London. Supplementing its observations as to dispensary provision, residential accommodation, finance, etc., the Public Health Committee submitted a further report as to arrangements for the residential accommodation of uninsured persons. The Committee remarked that, as the result of legislation passed last session, the position of the Metropolitan Asylums Board in relation to the provision of accommodation had materially altered, and, as reported last week, the Local Government Board had expressed the opinion that the Council could now deal with the Asylums Board as with any other sanatorium-providing authority. In addition to accommodation which could be provided by the Asylums Board, there were no doubt a number of beds at hospitals and sanatoriums available for London patients, and existing provision, if found insufficient, would doubtless be augmented by the authorities concerned, if they were satisfied that the Council would enter into arrangements with them for its use. The committee invited the Council to express the following opinion:

> That any comprehensive scheme for dealing with the treatment of tuberculosis in London shall provide that the Council shall make arrangements with the Metropolitan Asylums Board, with hospitals, and with sanatoriums, for the provision of the residential accommodation required for London uninsured patients suffering from tuberculosis; and that it be referred to the Public Health Committee to consider and report whether adequate provision can be made in this manner, without the Council being called upon itself to own and manage institutions.

Major Levita gave notice of an amendment expressing the opinion that the Council should not act as a financial intermediary between the Local Government Board and either the Insurance Committee or the borough councils, and should leave the local health authorities, with the Metropolitan Asylums Board and other institution-providing bodies, to deal with tuberculosis under the same administration as at present efficiently dealt with other diseases.

The London Insurance Committee wrote drawing the attention of the Council to the fact that the authorities of the Mount Vernon Hospital at Hampstead desired to dispose of the institution, and suggesting that the hospital should be acquired, if possible, for the treatment of insured persons in London suffering from tuberculosis. The Public Health Committee advised the Council to decline to purchase the institution and to direct the attention of the Metropolitan Asylums Board to its impending sale.

Ireland.

[FROM OUR SPECIAL CORRESPONDENTS.]

OPENING OF THE WINTER SESSION, BELFAST.

THE opening address of the new session was delivered at Royal Victoria Hospital on October 21st by Dr. John C. Rankin, assistant physician in charge of the electric department. The chairman of the visiting staff, Sir William Whitla, presided, and the medical staff, a number of friends, and the students were present.

Dr. Rankin offered a cordial welcome to the students on their return to a new session's work. Taking as his subject the textbook division of the order of study of disease, he showed how the conception of disease varied from age to age. The "demon" etiology of the early middle ages gave way to the anatomical etiology of later years, when the study of anatomy became general and dominated the lines of thought. Claude Bernard's work next introduced the physiological element, and the belief that abeyance or perversion of function was the strongest factor in the causation of disease. Koch's postulates brought in the reign of the microbe, but this phase had been succeeded by the study of immunity and biochemistry; and now the physicists were again altering the conception of etiology, and as yet the last word had not been spoken. In dealing with diagnosis, Dr. Rankin referred to the difficulties of the new terminology which a medical student had to master, and dwelt on the necessity of clearness of diction, of accuracy in the use of terms, and of care in note-taking. Clinical observation had by no means been superseded by modern scientific methods; they were complementary to each other. In discussing the difficulties of prognosis, it was pointed out that careful examination, prolonged study of the case, and accurate diagnostic reasoning all made for reliable prognosis, but that in many cases the outlook could not be given, except in vague and general terms. Finally the lecturer gave a brief sketch of the many forms of treatment; the physiological explanation of auto-suggestion and hypnotism; the doctrine of internal secretions and of Wright's vaccines; Wassermann's reaction and the enormous boon of Ehrlich's chemiotherapy; the rise to supremacy in certain departments of electricity, formerly the Cinderella of medical treatment; the ionic theory, and the influence of radium—all these were briefly passed in review, and the lines and potentialities of future treatment suggested.

WORKHOUSE HOSPITAL CHARGES.

At the last meeting of the Celbridge Board of Guardians a letter was received from the secretary of the Society for Promoting Protestant Schools in Ireland, with reference to the claim of nine guineas, being at the rate of half a guinea a day, made by the master for the maintenance in the workhouse fever hospital of a girl from the Celbridge Collegiate School. He pointed out that this charge was excessive, especially as the girl belonged to a family in humble circumstances, and was in the collegiate school through winning a scholarship, and he suggested that the fees should not exceed those charged in, say, the Adelaide Hospital, Dublin. The master explained that he based the charge on a letter received recently from the Local Government Board, containing an instruction that all expenses, including even the salaries of workhouse officials, should be taken into account in calculating the charges to be made against patients who were able to pay. The Board ordered the master to communicate with the Adelaide Hospital authorities as to what their fees would be in such a case. Most of the Dublin hospitals take in private patients for one guinea a week, and the charges in nursing homes are as low as three guineas and in some cases two guineas a week.

MONAGHAN SANATORIUM.

The Local Government Board has finally approved of the conversion of the County Monaghan Fever Hospital into a sanatorium for the county, and of the transfer of the County Fever Hospital to the disused fever hospital at Kilnacloy. The work of renovating both buildings is to begin at once.

IMPROVEMENTS AT COUNTY ANTRIM INFIRMARY.

At the last monthly meeting of the committee of management of the County Antrim Infirmary it was reported that various improvements, made possible by the success of a bazaar held in Lisburn some two years ago, had been completed. Electric lighting has been introduced throughout the building, the power being derived from an engine and an accumulator controlled by an automatic switchboard. In the operating theatre the lamps are on a double circuit and are provided with a two-way switch, so that in the event of any failure in the primary circuit the lighting of the theatre can be instantly continued by switching them on to the secondary current. A further safeguard is provision of a means of turning the whole

load on to the generating engine should the battery circuits ever fail. The operating theatre has been enlarged and fitted with ceiling as well as wall windows; its approaches, too, have been improved and electrical heating supplied for the sterilization of instruments and dressings. An electric lift has been installed in the well of the main staircase and will enable patients to be taken to and from the operating theatre with a minimum of labour and absence of shaking. It accommodates a stretcher and three persons, in addition to the patient. It is duly caged in and armed with all safety devices, while to ensure adequate power at all times a "cut-out" which places the lift during movement in direct connexion with the batteries, has been added to the switchboard. The improvements in the mortuary include the provision of a marble table and tiling of the walls. The walls of the out-patient department have also been tiled and new seats provided, while the old-fashioned windows in the women's wards have been replaced by modern sashes. The bazaar funds have also covered the expense of laying special mains to each ward, so as to enable the *x*-ray apparatus to be used therein when required, and of tiling and reshelving the hospital sculleries.

Scotland.

[*FROM OUR SPECIAL CORRESPONDENTS.*]

Insanity in Glasgow.

The annual report regarding the certification of lunatics in the Parish of Glasgow, which has been prepared by Dr. Carswell, the certifying physician, shows a marked decrease in insanity, especially among males, during the past year. The number of persons certified insane was 46 fewer than in the previous year and 67 fewer than in 1911, and it was also below the average for the two periods 1901–5 and 1906–10. Dr. Carswell attributes this decrease to the industrial prosperity, which, he thinks, enables working people to provide for weak-minded relatives without recourse to public institutions, and also enables others to be employed who, if unemployed, might find their way to asylums. During the year, 1,116 cases were dealt with; 527 were certified as lunatics (376 for the first time) and 546 were not certified, while 43 were under observation at the close of the official year. The insane cases were therefore 49.1 per cent. of the total, the lowest figure yet recorded. Dr. Carswell comments on the great value of the probationary system in the observation wards. The medical aspect of the illness is thereby emphasized, and it is the more readily realized by patients and their relatives that this provision is made for the mentally sick on similar lines to that provided for the bodily sick. The result is that patients come to receive treatment in the observation wards as willingly as into a general hospital. Since the opening in 1904 of the new hospital 5,571 patients have been admitted, and no difficulties have occurred in connexion with the reception of the patients on a purely voluntary basis. Apart from any question of medical treatment, the fact of voluntary residence must have had an important influence conducive to recovery. Dr. Carswell draws attention to the general correspondence between the death and lunacy rates, and adds that the figures for the last three years seem to justify the view that there exists a definite relationship between the occurrence of insanity and the prevalence of physical diseases.

"Scrapie," the "New Disease" among Sheep.

Some weeks ago[1] it was stated that it was proposed to ask Sir Stewart Stockman, chief veterinary officer of the Board of Agriculture and Fisheries, to give an address on "scrapie," the so-called "new disease" among sheep, at some convenient centre on the Borders. The address was given, on the invitation of the Yarrow and Ettrick Pastoral Society, at St. Boswells on October 23rd. Mr. Donald Maclean, M.P., presided, and there was a large attendance of flockmasters. Sir Stewart Stockman was able to find a reference to "scrapie" as far back as 1853, so that it was hardly a "new" disease, but there had been some degree of secrecy in regard to it, making it therefore "new" to the flockmasters who had been unlucky enough to buy infected animals. It was possible, but by no means proved, that it had been introduced into the country by merinos. It seemed only to affect sheep, but was restricted to no particular breed, although it had been most frequently met with in half-bred sheep of the Cheviot and Leicester cross. Active symptoms did not appear except in animals more than 18 months old, although some French writers stated they had seen it in sheep of only 10 months; it might appear at any age after 18 months. The malady, which lasted from three to four months, presented three stages. In the first, which lasted about three weeks, the symptoms were intermittent and required to be looked for; the animal frequently changed its position, it drank a good deal of water, rumination took place in the upright position, the pupil was dilated and the look fixed, the bleat was sometimes trembling, and grinding of the teeth was well marked. In the second stage, which carried the disease to about the sixth week, twitchings of ears, eyelids, lips, shoulders, and thighs were noticeable; there was straining and the passing of small quantities of faeces and urine; the animal was excited, but if chased would suddenly fall down, lie for a few minutes, and then get up again and move away. Towards the end of this stage, itchiness began along the back towards the root of the tail. In the third stage the itching got more intense, and extended to the sides, shoulders, and limbs. The animal constantly rubbed itself (hence the name "scrapie") against fixed objects and pulled at its wool with its teeth; but the skin showed no scurf or other appearance of scab. As the itching became still more severe, the animal appeared as if demented: rumination was irregular; thirst was intense; there was rapid emaciation, weakness in the hindquarters, sometimes taking the form of actual paraplegia; and finally small abscesses might appear under the skin, probably from infection of the abrasions caused by the constant rubbing. When "scrapie" was established on a farm the losses from it were often 4 per cent. per annum, but might be as high as 19 per cent. Sir Stewart Stockman was firmly of the opinion that the disease was directly or indirectly contagious, or it might be both. The explanation of its eradication from some farms in Norfolk seemed to be the late age of its development, the sheep having been slaughtered for food before the "scrapie" age was reached; whether it would suit the Border farmers to breed for a time for the butcher would have to be considered. There was certainly no cure for the disease known at present, and prevention therefore was the chief thing to be aimed at. Apparently the pasture did not become infected, or, if it did, the infection was of short duration. If a stock were badly infected, the best plan would be to build up a new flock gradually whilst the old one was being got rid of, and to keep the two separate during the process; it would be important to prevent any tups which had run with the affected flock being put with the new flock; indeed, since one tup might infect a large number of ewes, it seemed advisable to destroy him after the season if he had been used for affected or suspected ewes, and to start with a clean ram for the next season. It was suggested that with all sheep sold by auction for breeding purposes there should be a guarantee that they did not come from a farm where "scrapie" existed. Then if a farmer had the disease in his flock or was in doubt about it he could enter his sheep for sale as slaughter sheep. Mr. W. M. Barrie of Sundhope, Yarrow, in the discussion which followed the address, expressed the opinion that if a man sold sheep for breeding purposes, ewe lambs or gimmers, he should have them marked with a keel, as a guarantee that they were from a clean and healthy stock, and that very drastic measures should be taken with the man who neglected or falsified this guarantee.

[1] British Medical Journal, September 20th, p. 765.

The trustees of the Zunz Bequest have made a donation of £500 to the Chelsea Hospital for Women, in addition to the sum of £10,000 which they have promised towards the rebuilding fund.

During the year ending March 31st, 1913, the sum of £328,318 14s. 1½d. was received by the excise authorities for patent medicine labels, being an increase of £461 on the preceding year. The amount received for the year ending March 31st, 1911, was £325,646 4s. 7½d.

Correspondence.

EYESIGHT AND NAVIGATION.

Sir,—May I, relying on the courtesy which you have already shown to me, trespass a little further on your space to offer a few suggestions by way of a reply to my friend, Dr. Galloway of Aberdeen? Being the possessor of a hypermetropic astigmatism of nearly two dioptres against the rule, I have some experience of the conditions which that involves, and I must say that I am not aware of any power that I have either by the movements of the eyelids or of the eyeballs or of the lenses in my eyes which at all acts in a compensating manner. No matter what I do, my vision remains one letter of $\frac{6}{18}$ with each eye till I put on my spectacles, when it at once becomes $\frac{6}{6}$. In testing patients, I have not found that an astigmatism against the rule allows of materially better vision than one of a similar amount with the rule.

In the second place, I have to remark that I have recently learnt that the pilot with five dioptres of myopia whom I saw a considerable number of years ago, is still navigating, and I am informed by one of his colleagues that he does not to any great extent avail himself of binoculars. If Dr. Galloway would be good enough to place three-dioptre convex lenses in front of his eyes, provided these are emmetropic, he will I think be able to distinguish most objects that must be picked up by seafaring men, such as can-buoys, at the distance of a mile, or a vessel at 4 or 5 miles. As already said, however, I do not think that a myopic person, notwithstanding these facts, should be entrusted with navigation.

Perhaps a trifling myopia of half a dioptre would not make much difference, but any considerable amount I regard as precluding a man from service at sea.

Then as regards the velocities of ships approaching each other. No matter what the distance of the vessels may be, the time taken by light to travel from one to the other is an inconsiderable part of a second. Thus, if they are twenty miles apart when they first see each other, the time which light takes to travel between them is about 9,300th part of a second. It makes no difference whether the person who is on the look-out be emmetropic or hypermetropic, the retina will be disturbed at the end of that short space of time. I think it possible that the retina in an eye which is highly myopic will not undergo any definite change which will give rise to localization, but unquestionably a retina in a moderately hypermetropic one is affected, and that to such an extent as to cause sensation and the accompanying projection. As a matter of fact, just now there are probably hundreds of men engaged on the look-out at sea who are hypermetropic. It is only the Royal Navy which up till now has insisted on emmetropia, and even there, if we examine officers of about 40 or 45 years of age, I would be surprised if we do not find a fair number of hypermetropes amongst them. Certainly in the mercantile marine there are a large number of men on the bridge as masters and mates who have a not inconsiderable amount of hypermetropia.

I have called the sensation by which an officer distinguishes, say, another ship on the horizon the form sense, for want of a better name. It might, perhaps, be better to call it the perception of the difference of background, or perhaps even the light difference sense, with which no doubt it is very intimately associated. Personally, I do not suppose I ever begin to consider the problem as to whether a vessel approaching me has to clear me or I to clear it till the distance between us is, perhaps, less than two miles. There is, of course, no reason why I should not consider the problem sooner, but as a matter of fact I do not think anybody navigating a boat such as mine ever troubles about that question till the vessels are much nearer than two miles; certainly an officer in charge of an ocean-going liner would have made up his mind long before that short distance was reached whether he had to clear the other vessel or the other vessel had to clear him. Supposing that they are ten miles from each other, and each travelling at the velocity of twenty miles an hour, that means that they will be abreast in a quarter of an hour. Even for the distance of two miles the time that it would take them to be abreast would be three minutes. A few seconds is all that is required by a competent officer, emmetropic or hypermetropic, to make up his mind which has to clear the other according to the rules of the Board of Trade, and give the quartermaster any order that may be necessary. It takes only a second or two to put a wheel hard over in either direction. As already said, there are a very large number of hypermetropic men in the mercantile marine just now, and I feel sure that the Royal Navy is depriving itself of many useful officers by insisting on emmetropia. A few dioptres of hypermetropia makes no difference whatever.

Let us briefly consider the case of two other objects in rapid motion approaching each other. I mean motor cars. Does Dr. Galloway think that a hypermetropic chauffeur will have any difficulty whatever in seeing another car approaching, although the time may be only a few seconds instead of minutes, or does he think that a hypermetropic chauffeur has any difficulty in seeing say a stone on the road which he may be approaching at from forty to fifty miles an hour, or would he have any difficulty because of his hypermetropia in knowing that he had overrun a small animal such as a rabbit? Does he propose to put all chauffeurs out of employment who have slight hypermetropia? It would be quite as rational to do so as to put men out of employment in a seafaring line who are moderately hypermetropic. These latter see distant objects quite as clearly as does the chauffeur the small object at a nearer distance.

Let me refer once more, and that briefly, to my own case. I have nearly two dioptres of hypermetropic astigmatism, and I think about one dioptre of spherical error as well. Now for night navigation I have to take off the glasses which give me $\frac{6}{6}$. Lenses such as these reflect from about 15 to 20 per cent. of all incident light, and where the initial quantity is very small, the light reflected by the lenses makes all the difference between seeing at night and not seeing. Yet without my glasses I have no difficulty whatever in picking up landmarks, buoys and other vessels just as well as any one else. I have narrated in full some circumstances in proof of this in my evidence before the Committee, to which I would very respectfully direct Dr. Galloway's attention. In keeping a watch at night I am no good whatever with glasses on, but I see perfectly with them off, unless when it comes to be a case of reading the compass card, which, of course, I cannot do without my correction. The same sort of thing happens in motoring at night. Many chauffeurs find that they are much better without a glass plate in front of them.

The plain truth is that the look-out duties of navigation do not require emmetropia. In my opinion they have almost nothing to do with visual acuteness, but they have to do with a light sense disturbance of a definite shape on a definite area of the retina and the consequent projection. As a matter of fact, hypermetropes for many generations have navigated without the slightest difficulty or without the slightest risk to the travelling public, and are still doing so. I am not at present prepared to advocate that a man with a high degree of hypermetropia should be allowed to navigate unless he has passed satisfactory trials at sea, but a man with a moderate degree is essentially safe. All the same, within the last few days I have seen a farm grieve who, since I cut him for cataract, has been able to do all the work on his farm without any correcting glass at all; yet the refraction error is such that it requires a spherical +10 to give him emmetropia, as he has something like $\frac{6}{12}$ of visual acuteness. That man, however, without any correction, is absolutely able to plough, to drive a cart—and that without collisions—and to do all the work general on a farm. Whether this is an exceptional case or not I cannot say, but the explanation of the case is that he has got a light difference sense which I think may be called the form sense and a sense of projection. The fact remains that visual efficiency for labouring work and also for the look-out at sea does not seem to be a function of what I, speaking strictly, call visual acuteness.—I am, etc.,

Glasgow, Oct. 27th. Freeland Fergus.

SECONDARY X-RAY RADIATIONS IN MEDICINE.

Sir,—In Professor Barkla's paper, published in your issue for October 11th, there appears the following passage:

"Attempts had been made to utilize the action of secondary rays by placing against the body plates or

leaves of metal, so that either the Roentgen radiation after passing through a portion of the body fell on these plates, or first passed through the plate or the powdered metal. It should be remembered, however, that a layer of tissue of the thickness only in the neighbourhood of one hundredth of a millimetre was affected by these soft rays."

Professor Barkla is obviously here referring to the corpuscular radiations given off from the surface of the metal, having in view, no doubt, the fact that these particulate rays are the only ones directly concerned in the production of ionization, and consequently of chemical and physiological effects. It must be remembered, however, that a fluorescent—and characteristic or specific—radiation is also given off in considerable amount, which penetrates to a depth determined by the particular metal employed as an "intensifier." This fluorescent radiation, being of the *x*-ray or *gamma*-ray type, produces no direct effect, but it gives rise to flying electrons in the tissues precisely in the same manner as does the primary beam.

Suppose, for example, that in the case of a lupous patch within the nose a silver plate is placed behind the lesion. A cross-fire effect takes place, and ionization occurs in the diseased part, as a result, (*a*) of electrons set free by the primary beam, and (*b*) of electrons generated by the specific radiations from the silver plate, proceeding in a direction for the most part opposite to that of the exciting beam. To secondary rays so utilized I have applied the term "anadrastic."

On the other hand, where a powdered metal—for example, precipitated silver—is sprinkled on a diseased surface—that is, between the *x*-ray bulb and the lesion—secondary rays proceed in the same direction as, or in company with, the exciting rays; for such the term "syndrastic" is appropriate. In this case, also, the electronic disturbance in the tissues is the result of primaries *plus* secondaries, and the intensifying effect is manifest not merely throughout a distance of $\frac{1}{100}$ mm., but, in the case of silver, through an "effective therapeutic range" of about 1 cm.

Where an *x*-ray beam passes through any substance, the speed of the electrons which it liberates is determined by the "hardness" of the exciting rays. To produce a marked physiological effect it would appear from clinical observation that speed is of more importance than numbers. That is to say, hard rays, which are but slightly absorbed, and give rise to comparatively few electrons of high velocity, are more effective therapeutically than easily absorbed radiations setting free a large number of slowly moving corpuscles. Hence, when using anadrastic or syndrastic secondary rays, we must choose a metal which gives off a reasonably penetrating specific ray. Nothing having an atomic weight less than silver is of much use, and probably substances of still higher atomic weight—such as tin and barium—might be employed with profit.

In the case of the above methods of secondary ray therapy, it should be noted that we do not seek to use the corpuscular rays from the substances employed as intensifiers, but only their fluorescent radiations. To utilize directly the corpuscular rays given off by a metal, it is necessary, on account of their extremely short range, to deposit particles of the substance chosen actually within the cells to be attacked. The only certain method of accomplishing this which we at present possess is by driving in metallic ions—a method of limited applicability. Since 1911 I have persistently advocated ionization with zinc or silver previous to *x*-ray radiation of rodent ulcer, and I am pleased to see that this method has now been taken up by many electro-therapeutists, with reported success.

The choice of a metal for intracellular deposition is of no importance so far as the production of corpuscular rays by the primary beam is concerned. The penetrating power of the released electron depends solely on the hardness of the exciting *x* ray. But it must not be forgotten that the substances so introduced themselves give off *x* rays of characteristic type, which also contribute their quota to the production of electrons. Hence, within limits, the higher the atomic weights of the metals employed, the more rapid will be the electronic movements produced by their secondary fluorescent radiations.

The treatment of cancerous tumours by selenium or colloid copper should be closely watched by all interested in secondary ray therapy. From the strictly radiological point of view it matters little whether or not these substances are in themselves curative, so long as they prove to be selectively deposited within the cells of malignant growths.

Those interested in the history of the application of secondary rays to therapeutic uses, I would refer to my papers on the subject as follows: British Medical Journal, October, 1911; *Proceedings of the Royal Society of Medicine*, Electro-Therapeutic Section, March, 1912; *Journal of the Roentgen Society*, July, 1913.—I am, etc.,

Darlington, Oct. 13th. F. Hernaman-Johnson, M.D.

FIBROSITIS AND MUSCULAR RHEUMATISM.

Sir,—Dr. Luff's account of fibrositis, in the Journal of October 4th, is very interesting. Under the heading of "Massage and Exercise" reference is made to the method of applying it to joints, which should be done in as gentle a manner as possible, but no reference is made to exercise.

I am now 40, and seventeen years ago had an attack of subacute rheumatism, from which I completely recovered. Since then I have taken all kinds of active exercise, and am in the habit of taking a cold bath every morning followed by smart friction with a rough towel, and then exercises of the Swedish type. Climatic conditions leave me unaffected, owing, I think, to the fact that I harden myself by the means already mentioned. But after exercises, whether of the active or the Swedish type, I find some temporary aching in my knee-joints, which soon passes off; also, on bending my knees, I get the fine crepitus apparently due to villous synovitis described by Dr. Luff in so able a manner.

Am I, then, to understand that I am to give up all exercises owing to this fact, such as tennis, golf, bicycling? I have always supposed they were good for me. Surely with some men it is impossible to keep fit without exercise; and even if it should cause a certain amount of temporary pain of a mild character, it is better than becoming fat or flabby, which I should have thought would have only increased the tendency to fibrositis.—I am, etc.,

October 11th. Medicus.

THE CAUSE OF RHEUMATOID ARTHRITIS.

Sir,—It is certainly a novel theory to attribute rheumatoid arthritis to lack of perspiration; the next thing, probably, in connexion with the tuberculin craze, is to assign excessive perspiration as a prominent factor in the etiology of phthisis.

If Dr. Middleton desires to form a dispassionate estimate of the value of Continental treatment in arthritic conditions it will repay him to visit Bad Pöstyén (near Vienna) in Hungary, where, as a British physician, he will be hospitably received by the Bad directorate. The reputation of Pöstyén is founded on the unique character of the natural thermal sulphated water and the natural thermal sulphurous mud, for as Sir H. Weber and F. Parkes Weber rightly say in their standard work, there are no naturally hot peat baths, and but few places can boast of a hot mud supply. Both the water and the mud have a temperature of 140° F., and the latter especially, which has a very complex constitution, possesses a high degree of radio-activity. The mud is found in great abundance as a sediment from the springs, and is therefore essentially a natural product. At this unique spa hundreds of "enfeebled pain-racked patients" can be seen undergoing the treatment, with wonderful results, as the late Sir T. Spencer Wells testified in the British Medical Journal in 1888, after visiting the place. He wrote . . . "But the most remarkable effect of the Pöstyén treatment as a whole is the removal of chronic exudations, especially those about joints and tendons, which have caused the so-called spurious ankylosis."

Finally, I would point out to Dr. Middleton, that there is a local museum—and not a small one either—filled with crutches, with the names of their late owners attached, tangible evidence of what can be accomplished "abroad" in the case of chronic "enfeebled pain-racked patients."—I am, etc.,

Cairo, Oct. 2nd. T. Gerald Garry, M.D.

ON DOSES IN THE NEW "PHARMACOPOEIA."

SIR,—I have been somewhat surprised that Dr. Leftwich's letter appearing in your issue of October 11th has not excited a wider discussion. "One name, one dose" would be a very convenient arrangement. The fact that so many of us get into the habit of prescribing only a limited number of drugs is partly the result of, and partly the cause of, our forgetting the doses of many preparations. Personally I hate innovations, but any one who looks at a table of doses of the present *Pharmacopoeia* must see that a reform is necessary, and Dr. Leftwich's suggestion of prefixing "per" and "sub" to the names of the stronger and weaker liquid preparations respectively is a very good one. It would be interesting to know whether manufacturing chemists would be opposed to the necessary alterations in strengths of tinctures, etc. —I am, etc.,

W. K. BREWER, M.R.C.S., L.R.C.P.

London, N.W., Oct. 28th.

SPECIAL HOSPITALS.

SIR,—Wherever the title "Liverpool Ophthalmic Hospital" occurs in my letter of last week (pp. 1114, 1115) it should read "Liverpool Ophthalmic Infirmary."—I am, etc.,

Liverpool, Oct. 25th. THOMAS H. BICKERTON.

TREATMENT OF NEURASTHENIA.

SIR,—Perhaps you will allow me, as an answer to the many members who wrote asking for my views as to the treatment of neurasthenia, whom I could not answer individually, to refer them to the advertisement of my book entitled *A Doctor's Discovery*, on p. 7 of the advertisement sheets of this issue of the JOURNAL, where they will find all they desired.—I am etc.,

Hawick, Oct. 29th. JOHN HADDON, M.D.

Public Health AND POOR LAW MEDICAL SERVICES.

THE BOARDING OUT ORDER, 1911.

A CORRESPONDENT, a Poor Law medical officer, writes that on June 30th last he received from his guardians a fee of 2s. 6d. for visiting and reporting on boarded-out children in his district. During the quarter ending September 30th he visited in a similar way the same children, and the guardians have paid him a fee of 1s. only for each child. He wishes to know if the guardians have a right to reduce these fees from 2s. 6d. to 1s.

*** By the Boarding Out Order of 1911 the Local Government Board abolished the quarterly visit required of district medical officers, for which they were entitled to a fee of 2s. 6d., so that from that time it became no longer part of the duties of Poor Law medical officers to make these visits. The visits made, therefore, by our correspondent during the June quarter of 1913 were not necessary, and the guardians may have paid the usual fees forgetting the above Order. It would seem that they have now discovered their mistake, and have accordingly reduced the fee. Any fees paid now for such work could only be claimed on a special contract with the guardians. As they paid a fee of 2s. 6d. for this work during the June quarter of 1913, it might be held that by so doing they had tacitly entered into a contract to pay for this work at the old rate, and our correspondent might be able to demand the same payment for the work during the last quarter. But this is a legal point, and it would be best to consult a solicitor before sueing the guardians.

THE Clinical Congress of Surgeons of North America will meet in Chicago on November 10th, when the President-elect, Dr. George Emerson Brewer, of New York, will be formally installed, and will deliver the annual address. The presidents of the American Medical Association and the Canadian Medical Association are expected to be present, and to deliver brief addresses. On November 13th a special meeting will be held, at which the cancer problem will be discussed by prominent surgeons and laymen representing various organizations.

Obituary.

JUST LUCAS-CHAMPIONNIÈRE,

MEMBER OF THE INSTITUT DE FRANCE AND OF THE ACADÉMIE DE MÉDECINE; HONORARY SURGEON TO THE HÔTEL-DIEU.

To many in this country the news of the sudden death of Dr. Just Lucas-Championnière will bring a keen sense of personal loss. He had made many visits to us, and at each visit had won new friends by his open-heartedness and geniality, and the undimmed youthfulness of his spirit. As a surgeon he will be remembered on two accounts. The first is that he was the first French surgeon to study, appreciate, practise, and advocate the principles of antiseptic surgery as enunciated by Lister in the early days when he was professor of surgery in Glasgow. The second is that he was an innovator in the treatment of simple fractures. As a man he will be remembered especially as one who put into practice what many preach —the international brotherhood of science and of medicine—and his sentiments in this respect did not in any way diminish his loyalty to France and her great traditions, but rather helped by giving him the greater opportunities to spread them abroad.

Just Lucas-Championnière was the grandson of one of the leaders of the war in La Vendée and the son of a member of the medical profession who practised in Paris. He received his school education at the Collège Rollin, and, after passing with distinction through the ordinary course of medical study in Paris, became in due time interne. After serving this office he went abroad, and from London was attracted by the growing fame of Lister to Glasgow. He saw and understood, and returned to France in 1868 to proclaim that a new era in surgery had dawned. He met with indifference, with ridicule, with opposition, and finally with the retort that others had used carbolic acid as a surgical dressing. But he had the root of the matter in him, had grasped the principles for which Lister fought, and lived on through the antiseptic period into that of asepsis, with which he never brought himself to be in full sympathy. His affection and admiration for Lister were touching, and one of his last public acts was to head the deputation of French surgeons who, during the recent International Medical Congress in London, laid a wreath on the bust of Lister in the hall of the Royal College of Surgeons of England.

The history of his study of the treatment of fractures of the long bones may perhaps be related in his own words. In the address he delivered before the Cardiff Medical Society in 1909 he recalled the spirit of the method which served as a clue to guide him. "It is, in fact, true," he said, "that each successive step can be traced in the history of my various trials and investigations, and in the order in which my various applications of the method succeeded one another, I began by lessening the degree of immobility; next I did away with it altogether; next I began to use movements at an early stage; then I began to use them immediately after the injury; finally, I made use of massage—that is to say, of a method of mobilizing the muscles, joints, and even the bony fragments. It was necessary to define the indications and the limits of this special form of movement. Thus it was that years of observation and experiment led me to establish the bold practice of methodical therapeutic mobilization." His final views on the treatment of fractures by massage and mobilization were embodied in a volume which was reviewed in the JOURNAL of July 23rd, 1910; if it has not carried conviction to all surgeons, every reader has recognized the enthusiasm of the author, the large collection of striking facts and observations he brought together and the charm of the style in which they were related.

Lucas-Championnière, as surgeon to the Paris hospitals, was actively engaged in teaching for the greater part of his life, but he found time to edit the *Journal de Médecine et de Chirurgie Pratiques* founded by his father. It is now in its eighty-fourth volume, and the last number—that for October 25th—is almost completely occupied by an essay from his own pen on gymnastic methods, written as a commentary on the proceedings of the recent congress on physical education. In it he urges the medical profession to take in hand the duty of directing the

movement in favour of systematic physical exercises recently so warmly taken up in France. In 1875 he paid a second visit to Lister, then in Edinburgh, and published a book on antiseptic surgery, which gave an admirable account of its principles and their application. To the Lister Jubilee Number of this JOURNAL (December 13th, 1902) he contributed a historical article on scientific surgery, in which he traced the history of Lister's work, and concluded with the following tribute to his influence: "Lister has not only given us a method while destroying the errors of the past. He has given an example. He has shown us the road of discoveries by teaching us to examine with more independence the works of the past, in order to submit them to the scientific law which alone assure definite progress."

Some years ago Dr. Lucas-Championnière's health gave way, and his friends noted with regret his physical frailty and diminished buoyance of spirits when he attended the annual meeting of the British Medical Association in 1908 in Sheffield. At that meeting he read a paper on the treatment of fractures by mobilization and massage, in the Section of Surgery, and the University of Sheffield conferred upon him the honorary degree of D.Sc. Later on he appeared completely to have regained his old vigour, and few men have borne the burden of seventy years more lightly than he when in London last August. In 1911 he discharged with success the duties of the office of President of the Society of Surgery, which met that year in Brussels.

In 1876 he wrote a prize essay on trephining in relation to cerebral localization, and afterwards gave much attention to the subject of prehistoric trephining. He had been invited to give an address on the subject on October 25th at the annual public meeting of the five Academies which form the Institut de France. On October 22nd Dr. Lucas-Championnière was reading his essay to a Committee of the Institute, when towards the end of his task he suddenly collapsed. Some of his colleagues immediately went to his assistance, but death took place almost immediately. The essay, it is announced, will be published by the Institute.

JOHN LINTON, M.D., F.R.C.P.,

FORMERLY PHYSICIAN TO THE ROYAL HOSPITAL FOR CHILDREN, EDINBURGH.

THE death occurred on October 25th of Dr. John Linton, one of the oldest members of the Royal College of Physicians, Edinburgh. On retiring from practice eight years ago, Dr. Linton went to reside in Kinghorn, where the quiet of country life proved congenial to his simple tastes.

He was educated at George Heriot's Hospital and Edinburgh University, where he graduated M.D. in 1861. He commenced practice in 1861, and for some years he assisted Matthews Duncan. He became a Fellow of the Royal College of Physicians of Edinburgh in 1865, and at the time of his death he was the senior Fellow on the roll of attendance of that College. In 1868 he was elected physician to the Royal Hospital for Sick Children, a post which he occupied till 1879. At that time he commenced to build up a very large practice, in which he became so engrossed that holidays or any other relaxations were dismissed without consideration. It was chiefly as an obstetrician that he attained his great popularity, and his skill in this department, with his knowledge and love of children, made him the friend and adviser of numberless families. His kindness to the poor was proverbial. The question of payment for services rendered did not appeal to him, and no experience of ingratitude altered his inclination to go about doing good. His extreme gentleness and the kindliness of his manner made his presence in the sick-room a joy to his patients. His tall figure, so well known in Edinburgh, readily attracted attention. His practice was a very large one, and it has been calculated that during the forty-three years of its active continuance he brought no fewer than 10,000 babies into the world; he had attended as many as 460 confinements in one year. His busy life prevented him making many contributions to medical literature, but he joined both the Edinburgh Obstetrical Society and the Medico-Chirurgical Society in 1863, and in the *Transactions* of the former there appeared at least one paper from his pen—that in which he recorded (on May 13th, 1874) "a case of suppuration of dermoid cyst after delivery."

The love and affection of his patients was to him more than money, and his death will be mourned by thousands of those who had reason to remember his kind and sympathetic deeds. He did not marry till late in life; one of his two daughters predeceased him by a few months, her death being greatly felt by him.

JOHN THOMAS HARTILL, J.P., M.R.C.S., L.R.C.P.,

FORMERLY PRESIDENT OF THE STAFFORDSHIRE BRANCH OF THE BRITISH MEDICAL ASSOCIATION.

THE regretted death of Dr. J. T. Hartill in the last week of September brought to an end a career of much personal success and public utility.

He was born in 1847, and received his general education at Queen Mary's School, Walsall. Subsequently he joined St. Bartholomew's Hospital, London, where his work as a student brought him both the Wix and the Bentley prizes and proved a true presage of his after-life. He took the diplomas of M.R.C.S., L.R.C.P., in 1869, and joined his uncle and brother at Willenhall, where he remained in practice to the end of his life. Within three years of his arrival in the town he was appointed medical officer of health for the Short Heath district, and in 1889 he received a corresponding appointment in Willenhall itself. These appointments he still held at the time of his death; he was also surgeon to the post office, to the education authorities of the district, and to the police. The position that he enjoyed in the esteem of his colleagues is sufficiently indicated by the fact that in 1885, while still quite a young man, he was elected to the office of President of the Staffordshire Branch of the British Medical Association, and again chosen to fill that post some six years ago. He was also at one time President of the Medical Benevolent Society of Birmingham, and was appointed to the Commission of the Peace for the county of Stafford as far back as 1890. He remained in active work until the beginning of this year, when his health showed signs of failure, and was not restored by a prolonged rest on the south coast of England and elsewhere. On September 22nd he was seized by acute pneumonia, and died the following day.

While in good health, Dr. Hartill, in addition to professional work, exhibited an active interest in everthing that concerned the welfare of Willenhall. For a good many years he acted as churchwarden of St. Giles's Church, and was one of the recognized leaders of the Conservative Party in the county. He also contributed in no small degree to the success of the movement which eventually led to the establishment of the Wolverhampton Eye Hospital, and among other publications contributed to our own columns a valuable paper dealing with complications met with during labour, basing his statements on the history of 2,000 consecutive cases of pregnancy.

Dr. Harthill was married, and is survived by his wife, one daughter and four sons, one of the latter being in practice at Abbot's Langley, in Hertfordshire. Dr. Hartill's practice had been carried on by different members of his family for eighty-seven years.

ARTHUR BRISTOWE CARPENTER, M.A., M.B.Oxon.,

SENIOR MEDICAL OFFICER TO THE CROYDON GENERAL HOSPITAL.

CROYDON and a large circle of friends have recently suffered a great loss by the death of Dr. Arthur Carpenter, of Wykeham House, Bedford Park, Croydon. He was a son of Dr. Alfred Carpenter, who took a very active part in the work of the British Medical Association a quarter of a century ago.

Dr. Arthur Carpenter received his early education at Brighton, and later won scholarships at Winchester and New College, Oxford. In 1876 he entered as a student at St. Thomas's Hospital, and several years later held the post of house-surgeon and house-physician to that institution. In 1883 he became M.A., M.B.Oxon., and settled in Croydon. He married Miss F. Jones, a daughter of one of the leading citizens of Exeter, who, with five daughters, survives him. Up to within a few days of his death he continued to attend to his duties at the Croydon General Hospital, although suffering great pain, borne by him with a stoicism of which few are capable. For some time he was chairman of the medical committee of the hospital, and filled the position with conspicuous and characteristic

ability, to the admiration and sincere appreciation of the members of the staff. His kindliness, keen sense of fairness, natural courtesy, and geniality will long be remembered with affectionate regard by his colleagues, and some of those who have known him intimately for many years will remember him as the ablest and most satisfactory chairman that has ever presided over the medical committee.

By scarcely any one was the extent of his sufferings known, or even suspected, but it was patent to all, even to the most unwilling eyes, that he was suffering from a disease that must soon prove fatal. It would be no exaggeration to say that few men have imbibed as he did the lofty ideals of Winchester, and to the early influences of that school we are indebted for one of the finest characters that has graced the local profession for over a quarter of a century. To the end he retained his love of the classics, but such was his modesty and self-effacement that not one in a hundred of his friends knew that he obtained his scholarships both at Oxford and Winchester for mathematics, and very few indeed were even aware he had ever taken a prize.

In the religious and scientific life of Croydon he had taken an active part, and thus endeared himself to a circle quite outside that of his profession. His funeral took place from St. James's Church, at which he had acted as churchwarden for many years. The interment was at Bandon Hill Cemetery, Wallington, and was attended by a large number of the principal inhabitants of the borough, and by the leading members of the profession residing in the district. Being a composer of repute and master of the Surrey Bellringers' Association, a muffled peal was rung over his grave. This will never be forgotten by those who heard it, and more than one listener was heard to remark that the "beauty of the bells" was in harmony with the refined and beautiful character of the man. During the service a muffled peal was rung on the bells of the old parish church, and again in the evening for an hour and a half.

JAMES DODD SWALLOW, M.D.,

CLAPHAM.

At his residence in Clapham Park, S.W., on October 11th, Dr. James Dodd Swallow passed peacefully away, in his seventy-eighth year. He was long a well-known and popular figure in the neighbourhood of Clapham, where he had been in active practice for nearly fifty-two years.

He was born at Henley-on-Thames in 1836. He was first apprenticed to Mr. George May of Reading, Surgeon to the Royal Berkshire Hospital; afterwards he entered at St. Thomas's Hospital, then situated in the Borough, where he had a very distinguished career. He was surgical dresser to the late Sir John Simon, whom with his other teachers he held in the greatest regard, his favourite remark in speaking of them being, "There were giants in those days."

Dr. Swallow graduated M.D. at St. Andrews University in 1862, and also became a Member of the Royal College of Surgeons and Licentiate of the Society of Apothecaries. At the close of his hospital work, the Treasurer of St. Thomas's wrote of him: "Dr. Swallow was one of our best students." To show the character of the man and his determination to succeed it may be mentioned that during his student days, finding his resources exhausted, he went as dispenser in the evenings to a surgeon in the East End of London, in order to earn the wherewithal to support himself while carrying on his studies.

Dr. Swallow first set up in practice in Kennington Park Road, where he quickly attracted a large clientèle; subsequently he removed to Clapham, where he remained in active practice up to the time of his death. During the long period of his professional life he devoted himself entirely to his work, and built up a very extensive practice; this necessitated his refusing many honours and appointments which might have been his. He was, however, for some time honorary secretary of the South London Medico-Ethical Society. Amongst the appointments he retained at the time of his death were those of surgeon to the Royal South London Dispensary, the Linen and Woollen Drapers' Institution, and the London City Mission. He also at one time did a good deal of rectal surgery as a member of the staff of a small hospital which was swept out of existence many years ago by the cutting of new streets in the West Central district. He was greatly interested in medical charities, and had been for many years the honorary local secretary of the Epsom Medical College and the Royal Medical Benevolent Fund.

His loss will be felt deeply by all with whom he came into contact, for he was greatly esteemed on account of his sympathetic nature and kindness of heart. In many ways he was the type of what a general practitioner should be—the trusted friend of his patients as well as their medical adviser, entering whole-heartedly into their joys and sorrows. He was ever ready to help any of his professional brethren who had fallen on evil times, and one of the last cheques that he signed was on behalf of a colleague who had suffered much financial loss on account of the Insurance Act.

Dr. Swallow made several contributions to the medical journals, notably one describing the third case of appendicitis operated on by Sir Frederick Treves, which occurred in his practice, and was reported by him in conjunction with that surgeon. He was always keenly interested in the advances of medicine and surgery, and so lately as last winter gave a lecture and demonstration on radium and its possibilities. Dr. Swallow worked hard to the last. He was out seeing patients on the morning of the day he was taken ill with abdominal obstruction. An operation was performed by Mr. Makins, the senior surgeon of his old hospital, but he died from toxaemia four days later. He suffered great pain, which he bore with fortitude and resignation, and was devotedly attended by his old friend and fellow student, Dr. Joseph Lees, and by his son.

Dr. Swallow was twice married, and leaves a widow, one daughter, and three sons, the eldest of whom—Dr. Allan Swallow—has been associated with him in practice for the last twenty-four years. He also has a nephew in the profession—Dr. F. M. Swallow, of Bourne End, Bucks.

The funeral took place at Norwood on Wednesday, October 15th, when a large concourse of medical men, friends, and patients assembled at the graveside to pay a last tribute of regard and affection to one who was universally respected and esteemed.

Dr. Horace Dimock, of Stretham Manor, in the Isle of Ely, and also of Wisbech, Cambridgeshire, was found dead in his bed at the former place about noon on Monday, October 27th. He had been seen by his sister about 8 a.m. the same morning, and had then said he was about to get up. He had gone to bed the previous evening about 9 p.m., after complaining that he had not been able to sleep for three nights. Dr. Dimock, an Ely man by birth, commenced his medical education at Cambridge, where he graduated B.A. in 1903, completing it at St. Thomas's Hospital. He obtained the diplomas of M.R.C.S., L.R.C.P. in 1907, and in the same year proceeded to the M.A. of his university, and also took the degrees of Bachelor of Medicine and Bachelor of Surgery. Later he served St. George's Hospital as resident anaesthetist, and Addenbrooke's Hospital, Cambridge, as senior house-surgeon. On the Friday preceding his death Dr. Dimock had appeared before the magistrates at Wisbech to answer a charge of criminal libel based on information laid by Dr. Henry Meacock, chairman of the Isle of Ely Division of the British Medical Association. It was indicated that the alleged libel had taken the form of a post-card bearing printed matter addressed to Mrs. Meacock; but after a purely formal opening of the case the hearing of it was adjourned until October 31st, and Dr. Dimock, who strenuously denied the allegations made against him, was remanded on his own bail of £200, and two sureties of £100 each. In this area all the resident medical practitioners with the exception of Drs. W. and H. Groom refused to join the panel, and the Insurance Commissioners suspended the panel system in the area for two years, meantime appointing Drs. W. and H. Groom to attend to the needs of all insured persons within it. A little later on Dr. Dimock (whose home was some twenty miles from Wisbech) agreed to join them, and, like them, was appointed a medical insurance officer with a right to private practice.

Dr. Eugene Fauntleroy Cordell, who died at his house in Baltimore on August 27th, aged 70, was a man of remarkable gifts, which he used unselfishly for the benefit of his fellows. He founded and financed the Home for Widows and Orphans of Physicians, and took the chief part in establishing a fund for the widows and orphans of doctors. He also helped to found a home for incurables and a fund for the University of Maryland, in which he was professor of the history of medicine and also librarian. He gave much time and devotion to the study of the history of medicine, in which he was recognized as an authority. He was the author of the *Medical Annals of Maryland* and of a *History of the University of Maryland* and many other writings on historical subjects. He was formerly editor of the *Maryland Medical Journal*. Dr. Cordell had a lofty ideal of his profession in regard to scientific and literary culture. His ethical standard was of the highest, and in his life he was an example of the best type of physician.

Colonel Charles Seymour, late of the Army Medical Staff, died at Wimereux on August 28th. After taking the diplomas of M.R.C.S. and L.S.A., as well as the M.B. and C.M. of Aberdeen University in 1876, he entered the army as surgeon on August 4th, 1878, becoming surgeon-major on August 4th, 1880, lieutenant-colonel on August 4th, 1898, and colonel on June 21st, 1905; and retiring on April 12th, 1908. He served in the Soudan expedition in 1885–6, first at Suakin, and afterwards in the Frontier Field Force; was present in the action at Giniss, and received the medal with a clasp, and the Khedive's bronze star.

Deaths in the Profession Abroad.—Among the members of the medical profession in foreign countries who have recently died are: Dr. J. Bonet y Amigo, professor of obstetrics and gynaecology in the medical faculty of Barcelona; Dr. Reginald H. Fitz, formerly Hersey Professor of the Theory and Practice of Physic in the Harvard Medical School, visiting physician to the Massachusetts General Hospital, and joint author with Dr. H. C. Wood of a standard textbook of medicine, aged 70; Dr. Edwin Bayard Harvey, for many years secretary to the Massachusetts State Board of Registration in Medicine, aged 79; Dr. Nathan Jaconson, professor of clinical surgery in the College of Medicine of Syracuse University; Professor Otto Lange, head of the eye department in the Ducal Hospital of Brunswick, aged 60; Dr. Jules Ogier, head of the toxicological department and laboratory of the Paris Institute of Forensic Medicine, aged 60; and Dr. Eduard Schaer, professor of pharmacy in the University of Strassburg, and one of the foremost notabilities of his speciality in Germany, aged 70.

The estate of the late Mr. J. A. Nunneley has been declared at £55,556, the net personalty being £49,605. With the exception of a few bequests, the estate is left to his widow, with remainder to the Leeds General Infirmary and the Royal Mineral Water Hospital, Bath, in the proportion of two-thirds and one-third respectively. Mr. Nunneley, who died at Bath in August, took up his residence there after a long and distinguished career at Leeds, where he was for many years on the staff of the General Infirmary and of the School of Medicine. In the former his special work was ophthalmic surgery, and in the latter lecturing on anatomy.

A sale of work in aid of the Trained Nurses' Annuity Fund was opened by the Countess of Lytton at the Caxton Hall, Westminster, on October 23rd. Mr. Montague Price, Chairman of the Council, who presided at the opening ceremony, said that the fund was founded in 1874 by Lady Bloomfield for the purpose of assisting nurses who, through sickness or old age, found themselves deprived of their means of livelihood. By the year 1887 there were as many as ten annuities fully endowed; and at the present moment the fund provided pensions ranging from 5s. to 10s. a week to thirty nurses whose health rendered them unfit to follow their most arduous and exacting calling. There were still, however, over sixty applicants awaiting vacancies on the books; and capital was urgently needed to found these additional pensions. It was hoped that the present sale, which was the second of its kind held in aid of the fund, would help to reduce this deficiency. The sale comprised all the articles sent in competition for the prizes offered by the *Nursing Times*, as well as many beautiful specimens of needlework contributed by nurses and their friends and sympathizers.

The Services.

THE NAVAL MEDICAL SERVICE.

Distribution of Prizes.

The course of instruction of the newly-entered acting surgeons at Haslar was brought to a close on October 17th by the distribution of prizes and commissions by Lady Meux, wife of Admiral the Hon. Sir Hedworth Meux, Commander-in-Chief, Portsmouth. The distribution ceremony took place in the museum of the hospital in the presence of a large assembly of relatives and friends. Surgeon-General J. J. Dennis, R.N., presented the following report:

The grand total of the marks obtained on this occasion includes those first obtained at the examination on entry; secondly, those obtained at Greenwich; and, thirdly, those obtained at Haslar.

One of the three Admiralty prizes is awarded for the group of subjects studied at Greenwich and the remaining two for the subjects studied at Haslar.

Special commendations are as follows:

Acting Surgeon G. F. B. Page, for obtaining highest marks at both the Greenwich and Haslar examinations, and for being first in the Greenwich and one of the Haslar groups, though by the regulations taking only one prize.

Acting Surgeon A. M. Henry, for being first in the second Haslar group.

Acting Surgeon F. C. Wright, for being second in the second Haslar group and for the consistently good work he has done throughout the examinations.

Acting Surgeons Henry and Page, for the zeal and ability they have shown in the performance of their ward duties.

In the examinations all the acting surgeons succeeded in obtaining pass marks and in the majority of instances by a substantial margin.

The gold medal has been gained by Acting Surgeon A. M. Henry, formerly of Guy's Hospital, who obtained the highest aggregate marks in the London, Greenwich, and Haslar examinations.

The silver medal has been gained by Acting Surgeon G. F. B. Page, formerly of Edinburgh University, who takes second place.

The group prize for the subjects in which instruction is given at Greenwich is awarded to Acting Surgeon G. F. B. Page, of Edinburgh University.

The prizes for the subjects in which instruction is given at Haslar are awarded as follows:

Group 1.—Acting Surgeon A. M. Henry, of Guy's Hospital.

Group 2.—Acting Surgeon F. C. Wright, of St. Bartholomew's Hospital.

The order of seniority, as determined by the sum of the marks obtained by each acting surgeon at the London, Greenwich, and Haslar examinations, is as follows:

	Marks.		Marks.
A. M. Henry	3,810	D. G. Arthur ...	3,173
G. F. B. Page, M.B.	3,669	A. Simpson, M.B. ...	3,133
P. L. Gibson, M.B., M.A.	3,266	H. E. Y. White, M.B.	3,113
A. J. Patterson ...	3,233	M. Meehan	2,984
W. A. S. Duck ...	3,216	D. P. H. Pearson ...	2,966
F. C. Wright ...	3,211	I. S. Gabe	2,892
B. E. P. Sayers ...	3,195	A. J. Tozer	2,731

Following the reading of the report, the prizes and commissions were presented by Lady Meux, and at the conclusion of the distribution Surgeon-General Dennis voiced the thanks of the company for the Commander-in-Chief's presence and for Lady Meux's kindness in presenting the awards, remarking that the circumstances in which the recipients had been handed their commissions would impress on them the high ideal that was expected of them.

WELSH DIVISION TERRITORIAL FORCE.

Royal Army Medical Corps Staff Tour.

A party of officers assembled at the Abernant Hotel, Llanwrtyd Wells, Breconshire, from October 17th to 22nd, to carry out a Royal Army Medical Corps tactical scheme prepared by the head quarters staff of the Welsh Division. It involved the visiting of the hilly country from Builth Wells to Newbridge-on-Wye, Llanafan and Abergwesyn as far as Ystradffin, Rhandir-mwyn and Llandovery. The general idea was that "Westrick" (a country representing Wales and its Marches, with its

capital at Shrewsbury), after defeat at sea, had been invaded by a Continental Red army. The Red troops were advancing from the Cardiganshire coast by way of Lampeter and Tregaron on the left and of Llandovery on the right, and one Red column had reached Llanwrtyd Wells on October 17th. The operations were arranged to indicate the difficulties of transport of wounded and supplies in mountain warfare over a country indifferently furnished with railways and first-class roads.

The newly-appointed Commander of the Welsh Division, Major-General the Hon. J. E. Lindley, visited the area of operations on October 21st, and Colonel J. C. Culling, D.D.M.S. Western Command, joined the tour on October 19th.

The following officers of the Welsh Division took part in what proved to be an instructive and pleasant tour:

Directing Staff:—Colonel Arnallt Jones, K.H.S., V.D., Assistant Director of Medical Services, Welsh Division; Lieutenant-Colonel C. A. Young, R.A.M.C., D.A.D.M.S., Welsh Division; Major R. M. Woodley, R.A.M.C., Adjutant School of Instruction, Cardiff; and Major W. de L. Williams, D.S.O., General Staff Welsh Division.

Officers of the R.A.M.C.(T.): Lieutenant-Colonel C. Averill, Sanitary Officer, Welsh Division; Lieutenant-Colonel A. L. Jones, and Lieutenant Ackland, of the 3rd Welsh Field Ambulance; Lieutenant-Colonel Collins, 2nd Welsh Field Ambulance; Major C. T. Green, Major Howard Jones, Captain Ashley Bird, and Lieutenant T. Thomas, South Wales Mounted Brigade Field Ambulance.

Universities and Colleges.

UNIVERSITY OF OXFORD.

Philip Walker Studentship in Pathology.

AN election to this studentship, which was founded for the furtherance of original research in pathology, will take place next year in January. It is of the annual value of £200, and is tenable for three years. Its holder need not necessarily be a member of the university, nor a legally qualified practitioner of medicine. If the work done by the student is of exceptional promise the studentship may be extended for a second period not exceeding two years. Further information concerning it may be obtained on application to the University Registry, Oxford.

Degrees.

The following degrees have been conferred:

D.M.—A. T. Waterhouse, G. H. D. Carpenter.
B.M., B.CH.—G. W. Carte.

ROYAL COLLEGE OF PHYSICIANS IN IRELAND.

AT the annual meeting of the President and Fellows of the Royal College of Physicians of Ireland, held on St. Luke's Day, October 18th, the following officers were elected for the ensuing year:

President.—Dr. Charles E. Fitzgerald.
Vice-President.—Dr. James Craig.
Censors.—Dr. James Craig, Dr. T. G. Moorhead, Dr. A. Nixon Montgomery, and Dr. T. Henry Wilson.
Representative on the General Medical Council.—Sir John Moore.
Treasurer.—Dr. H. T. Bewley.
Registrar.—Dr. T. P. C. Kirkpatrick.

In the evening a large company of Fellows and guests were present at the St. Luke's Day dinner in the College Hall. Dr. James Little proposed the toast of "The Guests," to which the Lord Chancellor of Ireland and the President of the Royal College of Surgeons in Ireland responded.

CONJOINT BOARD IN SCOTLAND.

THE following candidates have been approved at the examinations indicated:

FIRST COLLEGE.—J. Michaelson, A. A. Lamaletie, V. Mahadevan, C. Pullan, W. Jackson, J. H. Brown, A. Morrison, S. Ponniah.
SECOND COLLEGE.—H. G. Anderson, J. S. Durward, C. J. Middleton, J. H. Bain, H. Ellison, O. G. Evans, V. A. Rankin.
THIRD COLLEGE.—C. F. Pereira, J. V. Duffy, A. G. McKee, W. MacLeod, A. G. Bee, W. H. Wray, T. W. Drummond, J. K. Garner, W. Spence.
FINAL.—J. B. Wilmnn, J. B. Aickin, C. S. Ogilvy, W. Bannatyne, Emma C. Fisher, S. D. Bridge, B. J. Hattam, Winifrid M. Doran, M. P. Power, J. W. McCagie, V. Mahadevan, C. Dolan, H. E. Rose, R. H. Thomson, R. E. N. Martyn-Clark, J. N. Clark, M. V. Walsh, J. R. Smith.

SOCIETY OF APOTHECARIES OF LONDON.

THE following candidates have been approved in the subjects indicated:

SURGERY.—†W. Alcock, †A. C. O. Brown, *W. S. Hyde, †W. E. Masters, *†L. C. Smith, *†W. V. Tothill, †C. G. Waddington.
MEDICINE.—†C. Duncan, *W. H. Lister, †S. E. Murray, *†C. G. Waddington, *†A. H. Willson.
FORENSIC MEDICINE.—A. C. O. Brown, D. Schonken, J. D. Schonken.
MIDWIFERY.—A. C. O. Brown, G. B. Holroyd, W. V. Tothill, A. K. C. Wyborn.

* Section I. † Section II.

The Diploma of the Society has been granted to Messrs. W. Alcock, C. Duncan, S. E. Murray, W. E. Masters, and W. V. Tothill.

Medico-Legal.

AN UNREGISTERED PRACTITIONER.

IN the case of Rex *v.* Freitas, at Gloucester, an unregistered practitioner who pleaded guilty to various offences was sentenced to ten months' imprisonment with hard labour.

The proceedings in the police-court were briefly noted in the JOURNAL of July 25th, p. 211. According to the fuller report published in the *Dean Forest Mercury* of July 18th, it appears that in May last the Cinderford and District Friendly Medical Aid Association was in need of a medical officer. An application for the post was made by a person who gave his name as Jose Manuel de Freitas, of 15, Douglas Street, London. He said he was on the *Register*—his qualifications being M.B., C.M.Edin.—but that he would have to write to the General Medical Council to have his address altered; as it was then Demerara, British Guiana. He was appointed, and two days later entered upon his duties, which continued until June 5th, when he was paid £39 5s. for fees.

Up to this point no difficulty appears to have arisen; but the approaching confinement of a patient appears to have created some trouble. To enable him to attend he required certain instruments, and he made application to the secretary of the association for money wherewith to buy them in Gloucester. Having procured £4 10s. he left for Gloucester on June 5th. On June 6th he wrote to the secretary of the association saying he had been unable to procure the instruments, and was obliged to stop in London owing to the illness of his child; and that he could not return for a week. He invited the secretary to get a substitute to do his work for a week. A little later he wired, "Child dead. Absolutely distracted." When arrested in London in the early part of July he said that he had not yet bought the instruments and offered to return the money. He was committed for trial.

At the Gloucester Assizes on October 28th Mr. Justice Coleridge heard the case. According to a report which appears in the *Times* of October 29th, the prisoner was charged with forgery of a death certificate. He was also charged with having fraudulently converted to his own use money entrusted to him for the purchase of surgical instruments by the Cinderford and District Friendly and Medical Aid Association, and with having obtained from the association the sum of £37 by false pretences.

The Hon. Reginald Coventry prosecuted. The prisoner was represented by Mr. Wilfrid Price.

Mr. Coventry said that the prisoner had answered an advertisement for a post as doctor to the association. One of the officials stated that the prisoner worked for the association for three weeks without any complaints being made by the patients whom he attended.

Detective Sergeant Hayman, of Scotland Yard, said the prisoner was one of the worst characters he had ever met. He lived by fraud and on the immoral earnings of women. Complaints had been made to Scotland Yard that the prisoner had defrauded a lady at Bradford of over £1,300, and a gentleman at Forest Hill of £100. He carried on several businesses as a doctor, but the witness could not find that he had any medical qualifications. There was a real Dr. Freitas on the *Medical Register*. The detective also said that the prisoner had falsely represented himself as an officer in a foreign regiment, and as the son of Baron de Freitas, Prefect of Corsica.

Mr. Price, on behalf of the accused, said that he had acted in a fit of sudden temptation and frenzy.

Mr. Justice Coleridge passed sentence as stated.

A BEQUEST to Huddersfield Infirmary, of the value of £1,000, is included in the will of the late Captain Thomas Jessop of Honley.

THE Marquis of Linlithgow has accepted the presidency of the Congress of the Royal Institute of Public Health to be held in Edinburgh next July.

THE usual monthly meeting of the Executive Committee of the Medical Sickness, Annuity, and Life Assurance Society was held at 429, Strand, London, W.C., on October 17th, Dr. F. J. Allan in the chair. The claim account presented showed a slight margin against the society, and from figures to hand it would appear that the claims will be heavy for the whole year. New proposals were up to the average, and the proposals for additional benefits showed a steady increase. The sixth quinquennial valuation since the inception of the society in 1884 will take place this year. Dental surgeons are eligible for membership. All information can be obtained from the secretary, Mr. Bertram Sutton, 33, Chancery Lane, London, W.C.

Medical News.

THE Earl of Aberdeen was on October 25th unanimously elected Lord Rector of St. Andrews University.

THE Belgian Academy of Sciences offers a prize of £700 for an effectual remedy for epilepsy. The competition is open to all.

IN aid of the Royal Dental Hospital, which is in urgent need of funds, a performance of Mr. Maugham's play "The Tenth Man" is to be given at the Royal Court Theatre, Sloane Square, W., on the evening of Wednesday, November 19th, by the Strolling Players. Tickets, the price of which varies between 1s. and 10s. 6d., can be obtained on application to the Secretary of the Hospital, 32, Leicester Square, W.C.

A QUARTERLY meeting of the Council of the National Federation of Ophthalmic Opticians was held in Leeds on October 21st, Mr. R. Chalmers (Sunderland), President, occupying the chair. Thirty local secretaries for the Federation were appointed. The attention of the Council was drawn to the fact that a member of the Federation had used the Federation initials after his name on his business card. The Council directed a letter expressing its disapproval to be sent to the member.

IT is expected that the Home Office Committee on First Aid Certificates will report very shortly. It consists of Dr. W. N. Atkinson, Inspector of Mines for the South Wales district (Chairman), Mr. G. Alfred Lewis, Secretary of the Colliery Managers' Association, and Mr. Thomas Richards, M.P. Its instruction is to report what, if any, first aid certificates besides those of the St. John and St. Andrews Associations should be recognized by the Home Office for the purposes of the grant of mine managers' certificates and other purposes under the Coal Mines Act, and on what conditions.

IN the JOURNAL of July 19th, page 132, a report was published of a preliminary meeting which had been held to discuss the advisability of establishing a medico-psychological clinic in London. A further meeting is to be held at University College on Wednesday next, when Lord Sandwich will take the chair at 3 p.m. in the botanical theatre. At this meeting the objects of the scheme will be explained and an appeal made for subscriptions to provide a sum of £1,000 for the provision of a house and its equipment as a clinic for the treatment of patients by psychotherapy. Further particulars can be obtained from the Secretary, Miss J. Turner, 14, Endsleigh Street, W.C.

THE Alliance of Honour, which has for object the promotion of purity, chivalry, and manhood, is to hold a special meeting at the Central Hall, Westminster, on November 6th, as a "send-off" to a series of corresponding gatherings during the winter in various parts of London. The chair will be taken by Sir Robert Anderson at 7.30 p.m., and the proceedings include an organ recital, some songs by the choir of the society, numbering some 500 male voices, and short addresses from the Rev. Prebendary H. Webb-Peploe, Mr. E. Smallwood, L.C.C., the Rev. F. W. Macdonald, Mr. Silas Hocking, the novelist, and others. Early application for tickets should be made at the headquarters of the Alliance, 112, City Road, E.C. This association has the support of clerics of all denominations, and its long list of vice-presidents includes the names of many well-known medical men.

A MUSEUM is being arranged in connexion with the sixth International Dental Congress to be held in London, August 3rd to 8th, 1914, under the patronage of the King. The museum, which is divided into eleven sections, will comprise: (1) Specimens showing the evolution of tooth forms and of the dentition of man, histological preparations and exhibits illustrating the chemical composition and physiological action of the saliva; (2) specimens of morbid conditions of the teeth, palate, gums, and jaws, photomicrographs and cultures of oral micro-organisms, new bacteriological apparatus and appliances; (3) specimens of teeth, gums, and jaws affected by pyorrhoea alveolaris, exhibits of various new methods of "inlaying" cavities and of "crowning" teeth; (4) radiographs of the normal and diseased dental tissues; (5) exhibition of articulators, of methods of "pressure casting," and of modern forms of continuous-gum work; (6) models showing abnormalities in position of the teeth, and appliances for their correction; (7) specimens illustrating methods of dealing with surgical conditions of the teeth and jaws, including cleft palate, hare-lip, fracture and resection of the jaws: (8) specimens illustrating the history and evolution of anaesthesia; (9) photographs, charts, diagrams, and statistics of school clinics; methods of the instruction of the public in the principles of oral hygiene; (10) instruction forms, charts, diagrams, specimens, and demonstration models used in relation to dental education; (11) historical objects of interest (books, instruments, pictures, etc.). The chairman, Mr. A. Hopewell-Smith, will be happy to forward the regulations and application and entry forms for all exhibitors who will write to him at the International Dental Congress Office, 19, Hanover Square, London, W.

AT the annual dinner of the Bolton Medical and Medico-Ethical Society on October 22nd Dr. G. H. Parker, ophthalmic surgeon to Bolton Infirmary, was in the chair, and a considerable number of laymen were present as guests. The toast to the society was proposed by Mr. A. H. Burgess, surgeon to the Manchester Royal Infirmary, who, in the course of his remarks, expressed the view that in the early future Bolton, in common with other towns close to Manchester, would have to do more of its own surgical work, and accordingly to enlarge its infirmary. In proposing a toast to the inhabitants of Bolton, the future of this town was discussed by Dr. J. L. Falconer, who foresaw the abolition of Bolton's smoke cloud through the substitution of electricity for steam in its manufactories. The future of the empire, he thought, lay in cultivating a more ideal spirit in urban life and in getting men to devote themselves to the service of towns; the toast was acknowledged by Mr. T. Taylor, M.P. That to the guests, coupled with the names of Sir Thomas Flitcroft, Mr. Burgess, and Canon Chapman, was given by Dr. E. R. Devereux Mothersole, who drew attention to the fact that, for the first time in its history, the society was entertaining as a guest one of its own members; the honour of knighthood recently conferred on him was a source of pleasure to all his colleagues. Musical honours were accorded to the toast to the chairman, on the proposal of Dr. F. R. Mallett, who suggested that central and local authorities should go further than they had yet done and make some return for the great amount of work thrown on specialists by the Education and Insurance Acts. In the course of the evening there was sung by Dr. J. Johnston an amusing song, composed by himself, on the subject of the National Insurance Act, the good and bad points of which from the point of view of the medical profession were brought out in a series of three-rhyme, twelve-line verses, each ending with a chorus.

THE second annual report of the King Edward VII British-German Foundation has been issued. The fund was primarily established to assist British citizens in Germany and German citizens in Great Britain in moments of difficulty. In this way 218 cases were dealt with last year, of whom 116 received permanent allowances, the others being helped by grants or loans for such special purposes as convalescent treatment, payment of pressing debts, repatriation to Germany, and emigration to British colonies. The fund, however, was so considerable that it was found possible to make donations to benevolent institutions in this country which include persons of German nationality in their charities; as the special work of the fund develops these subscriptions may be discontinued. On the other hand, it is hoped to carry on the policy outlined in the resolution adopted at the first joint conference of the two sections of the foundation held at Sir Ernest Cassel's house in London in September, 1912. This resolution resolved that a certain proportion of the surplus funds of the German section should be used to enable British subjects to attend or visit universities, schools, institutes, or business establishments in Germany, and that a certain proportion of the surplus funds of the British section be employed in enabling Germans to attend or visit universities, schools, institutes, or business establishments in the United Kingdom. It is intended that in this way to assist men of promise who do not possess private resources, enabling them to pursue a course of study abroad, and at the same time to give them an insight into the customs and characters of the inhabitants of Great Britain and Germany respectively. Under this arrangement seven British subjects have proceeded to German universities, one of them, Mr. A. Cowe, M.B., Ch.B., of Edinburgh University, being engaged in the study of neurology and gynaecology, while five studentships have been awarded to Germans to pursue their studies in this country. The second joint conference of the two sections was held in Berlin on October 25th. The British deputation consisted of Sir Ernest Cassel, founder of the fund; Mr. Geoffrey Drage, chairman of the executive committee; Lord Redesdale, vice-chairman; Sir Henry Babington Smith; Sir Charles Behrens; Mr. Felix Cassel, K.C., M.P.; and Dr. Schuster.

Letters, Notes, and Answers.

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TELEPHONE (National):—
2631, Gerrard, EDITOR, BRITISH MEDICAL JOURNAL.
2630, Gerrard, BRITISH MEDICAL ASSOCIATION.
2634, Gerrard, MEDICAL SECRETARY.

☞ *Queries, answers, and communications relating to subjects to which special departments of the* BRITISH MEDICAL JOURNAL *are devoted will be found under their respective headings.*

QUERIES.

INCOME TAX.

DEVONIENSIS is in partnership with a practitioner who pays a certain amount of annual interest on a loan. A portion of the partnership assessment is charged at 1s. 2d. in the £ in respect of this interest. Is this correct, or should the charge at 1s. 2d. be made on the individual partner liable to payment of the interest?

*** Section 19 (5) of the Finance Act of 1907 restricts the allowance granted to "earned incomes" in such a way as to leave chargeable at 1s. 2d. the amount from which the "individual entitled to relief" is authorized by law to deduct income tax. Reading this subsection with that portion of the same Act which abolished the right to a separate assessment of partnership shares, it would appear that the assessment in question is correctly made. As "Devoniensis" points out, it seems strange that he should be liable in respect of a sum which has so distinct a reference to his partner's private affairs; but even if the total duty should not be apportioned between the partners before payment, "Devoniensis" would subsequently be entitled, as between his partner and himself, to require an equitable adjustment of the matter.

ATTENDANCE OF MEDICAL WITNESSES AT INQUESTS.

H. E. G. asks: (*a*) What length of notice a medical man ought to get before giving evidence at an inquest and (*b*) whether such notice should be in writing.

*** (*a*) When it appears to the coroner that the deceased was attended at his death or during his last illness by any legally qualified medical practitioner, the coroner may summon such practitioner as a witness. There is no specified length of notice to be given, and the coroner may either in his summons for the attendance of such medical witness or at any time between the issuing of that summons and the end of the inquest, direct such medical witness to make a *post-mortem* examination of the body of the deceased. As a rule the earliest possible notice of the time of holding an inquest is given by the coroner's officer to a medical witness, but in some cases, especially when other facts than those originally reported to the coroner come to his knowledge immediately before the inquiry, the notice is necessarily short.

(*b*) Although it is not the universal practice to issue a written or partly written and printed summons form to medical witnesses it is common to do so, and the wording ("the coroner may in his summons" and "the issuing of that summons") of the section of the Act governing the summoning of such witness suggests that summoning should be by the issuing of a summons form.

ANSWERS.

CHOLELITHIASIS.

A QUESTION inserted in the JOURNAL of September 27th having brought no answers, we have obtained the following note from a surgical contributor: If it is quite certain that the common duct is patent—this is indicated by the presence of bile in the stools—and if it may be taken as certain that there is no malignancy in any part of the biliary passages, the cause of the persistence of the biliary fistula may be that mucous membrane of gall bladder and skin are continuous. A plan, found repeatedly successful, is to destroy the mucous lining of the fistula for an inch at least inwards from the skin surface by means of the thermo-cautery or a sharp spoon (the former preferred), with immediate suture by silkworm gut. The patient should be put to bed for ten to fourteen days while the plan is being tested. This may be done twice if required. If failure to close the fistula again occurs, the only alternative now left is to remove the gall bladder. Of course, it is presumed that there are no more gall stones in the bladder or duct.

LETTERS, NOTES, ETC.

REX *v.* HAMILTON.

DR. W. H. GIMBLETT (86, Sutherland Avenue, Maida Vale, W.), whose appeal giving the name of the committee formed to raise a fund to reimburse Dr. Hamilton was published last week (p. 1118), acknowledges the following additional subscriptions:

	£	s.	d.
Mrs. Staples (Strawberry Hill)	3	3	0
Dr. E. W. White (London)	2	2	0
Mrs. Forsyth (Barnes)	0	10	0
Mr. G. Newall (Barnes)	2	2	0
Mrs. Forcett (Barnes)...	5	5	0
Dr. Bishop (Barnes)	1	1	0
Mr. P. Cooke, L.D.S. (Barnes)	2	2	0

SALVARSAN.

WE have received an appeal from Dr. Dreuw, of Berlin (Potsdamerstrasse 31A), urging the importance of all cases of death after salvarsan, or of untoward results following its use, being recorded, and asking that copies of reports of any such cases may be sent to him.

FORCIBLE FEEDING.

MR. FRANK MOXON, M.B., B.S. (London, W.) writes: Forcible feeding in connexion with the "suffrage" prisoners is for the purpose, I take it, of preventing them dying of starvation, and of compelling them to serve their term of imprisonment. It has failed in its purpose, and is therefore useless as a purely medical procedure. If this be so, then the continuance of forcible feeding is a torture, and as such should not receive the support of medical sanction. If a prison doctor confesses the treatment to be useless to effect its object, is he bound to continue it on the order of a Government lay authority?

WE have also received a letter from Dr. F. N. Grinling (Newcastle-on-Tyne), who argues: "All who think on the question must see that the demand for the "vote" is the legitimate and inevitable outcome of the movement for the higher education of women, which, at this time of day, few, excepting obscurantists such as Sir Almroth Wright, would care or dare to condemn or contemn." He desires to appeal to the profession, and to ask from it an expression of opinion deprecating resort to forcible feeding.

CURE BY LAUGHTER.

MR. E. MUIRHEAD LITTLE (London, W.) writes: To the cases quoted in your "Literary Notes," p. 879, and those given by your correspondents, Drs. Monod and de Havilland Hall, may I add the well known one told of Dr. John Radcliffe (died 1714)? The story goes as follows: An important patient appeared to be in danger of suffocation from a tonsillar abscess, and Radcliffe adopted the elaborate device of ordering two of his own servants to eat hasty-pudding in the sick-room. Probably the patient was too ill to object to what must have seemed an unusually outrageous proceeding, even for the eccentric Dr. Radcliffe. Following his secret instructions, the men soon began to quarrel and to throw the pudding all over one another's faces and liveries. This very broad joke caused the patient to laugh and the abscess to burst, and all then went well. Perhaps similar incidents have happened and been recorded ever since quinsy and laughter began.

EARTH CLOSETS.

THE leaflet describing how satisfactory earth closets may be economically constructed, to which reference was made in in our issue for August 9th, has now been published. Its author is Dr. Herbert Jones of Hereford. It is published by our contemporary, the *Medical Officer*.

COPYING PENCILS.

MESSRS. L. AND C. HARDTMUTH request us to draw attention to the fact that they are now paying special attention to the production of "Mephisto" pencils. Memorandums written with them can be copied in the press, and the writing does not smudge. The leads are of two qualities, one soft and one hard, both being easily pointed; and the latter sufficiently strong for duplicating purposes when carbon paper is used. For this reason the firm thinks the pencils may be specially useful to medical men in connexion with panel work.

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